DOCUMENT RESUME

ED 266 558 EA 018 304

AUTHOR Fitzpatrick, Kathleen; Charter, W. W., Jr.
TITLE A Study of Staff Development Practices and Organizational Conditions Related to Instructional Improvement in Secondary Schools. Final Report.
INSTITUTION Oregon Univ., Eugene. Center for Educational Policy and Management.
SPONS AGENCY National Inst. of Education (ED), Washington, DC.
PUB DATE Mar 86
NOTE 121p.
PUB TYPE Reports - Research/Technical (143) -- Tests/Evaluation Instruments (160)

EDRS PRICE MF01/PC05 Plus Postage.
DESCRIPTORS Evaluation Criteria; *Faculty Development; High Schools; Inservice Teacher Education; Instructional Design; *Instructional Improvement; Mathematics Instruction; Organizational Effectiveness; Policy Formation; *Program Effectiveness; Program Implementation; *School Supervision; Teacher Evaluation; *Teacher Supervision; *Teaching Conditions; Teaching Load; Teaching Methods
IDENTIFIERS *Instructional Leadership

ABSTRACT

This study investigated instructional leadership functions and school policy factors that affected implementation of instructional strategies presented in a research-based staff development program for secondary school mathematics teachers in school districts in the Chicago suburbs. The instructional leadership functions included the amount and sources of support teachers received in their efforts to improve instruction. School policy factors included the workload assigned to teachers and the school's instructional supervision and evaluation procedures. A second objective was to test the effectiveness of the training provided in the staff development program by analyzing teacher participation, distribution of class time across various instructional functions, and student engagement in the learning process. After an introductory chapter setting forth the research problem and objectives, the four remaining chapters provide (1) an extensive review of the pertinent literature on instruction, staff development, instructional leadership, evaluation, and teacher workload; (2) an in-depth description of the research methodology; (3) data analysis; and (4) a discussion, based on findings, of staff development program effectiveness and organizational conditions for instructional improvement, along with recommendations for future research. Four appendixes provide instrumentation from the study. (TE)

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A Study of Staff Development Practices and Organizational Conditions Related to Instructional Improvement in Secondary Schools

by
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March 1986

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EA 018 391

The preparation of this final report was made possible through an Institutional Grant awarded by the National Institute of Education to the Center for Educational Policy and Management. The opinions expressed in this report do not necessarily reflect the positions or policies of the NIE or the U.S. Department of Education.

Acknowledgements

We wish first to acknowledge the teachers and administrators of the school districts that participated in the project. Their willingness to become involved in the study is a reflection of their commitment to the profession and their unrelenting desire to pursue instructional excellence.

In addition, the substitute teachers who served as classroom observers provided tremendous assistance with the data collection process. They assumed the task of conducting classroom observations with great skill and care.

A special thanks is also extended to those who provided consultation and support. James Block's thoughtful suggestions for the design of the staff development program and Barak Rosenshine's review of the classroom observation measures developed through the project provided invaluable assistance.

Several staff members of the Center for Educational Policy and Management provided support to the project. Robert Mattson and Richard Carlson helped to sharpen the focus of this investigation by expanding our perspective on the process of improving instruction in secondary schools. Their continuing support throughout each phase of the project is deeply appreciated. Ken Duckworth, Meredith Gall, Russell Gersten, and Jane Arends also offered many useful ideas. In particular, their helpfulness during the developmental stages of the project enabled us to consider multiple dimensions of the issues related to secondary school improvement. Dorothy Van Cleef helped to coordinate the management of the project. Ron Renchler provided expert editorial assistance. Terri Williams and Linda Lumsden typed the report. We are grateful for the support and encouragement of each of these individuals.

Kathleen Fitzpatrick, research associate, prepared the technical proposal for the project, designed and conducted the staff development program developed through the project, managed the collection of classroom observation data and survey data, and wrote the final report. Any inaccuracies in the report are hers alone. Sandy Charters, University of Oregon professor of education, assisted with the design of the data analysis plan and executed all of the statistical analyses presented in Chapter 4. In addition, he contributed to the interpretation of the meaning and significance of the findings reported in the study.

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Chapter One

Research Problem and Objectives

Statement of Purpose

The purpose of this study was to investigate instructional leadership functions and school policy factors that affected the extent to which teachers implemented instructional strategies presented in a research-based staff development program for secondary school mathematics teachers. The instructional leadership functions studied included the amount and sources of support teachers received in their efforts to improve instruction. School policy factors that were considered included the workload assigned to teachers and the school's instructional supervision and evaluation procedures. Our study examined the relationship between variations in these factors and the extent of implementation of the recommended teaching strategies contained in the staff development program.

A second objective was to test the effectiveness of the training provided in the staff development program designed for the project. The content of the training program was based on findings from research on instructional practices related to classroom management functions and on elements of instructional design. Moreover, the training activities provided in the staff development program were also research-based, and their design reflected research-based staff development practices known to be effective in terms of the extent to which they were implemented.

The model's effectiveness was assessed by analyzing the extent to which the participating teachers who participated applied the teaching strategies recommended in the program, the differences in the distribution of class time across various instructional functions, and the degree of the students' engagement in the learning process.

The research project was conducted under the auspices of the Center for Educational Policy and Management (CEPM) at the University of Oregon. It was designed to address areas of study outlined in CEPM's Program on Secondary School Organization and the Program on Staff Development. The focus of our project was directly related to the central issues in both programs, namely, the relationship of instructional leadership functions and school policies to the implementation of staff development programs in secondary schools.

The Problem

Since the release of A Nation at Risk (National Commission on Excellence in Education 1983), education analysts have delivered a "rising tide of reform reports" (Cross 1984) to the education community. These analysts based their reports on research studies that employed varied approaches to investigating the schooling process, and their recommendations have led to a unanimous call for strengthening the quality of the education our schools provide.

Perhaps the most troubling of the concerns these reports cited were those related to the teaching and learning processes that prevail in high schools. For example, Theodore Sizer (1984), in his study of American secondary schools, reports that the vast majority of high school students appear to be content with satisfying minimum expectations for their academic performance. Furthermore, he characterizes most high school students' classroom behavior as passive and docile and notes that students are rarely engaged in any instructional activities that require more than rote memorization.

Recent studies have also indicated that high school teaching methods often do not resemble those that research on teaching effectiveness has

identified as contributing most to improved student achievement. Writing of the status of the effective schools movement in high schools, Farrar, Neufield, and Miles (1984) make this assessment:

> Program developers report that secondary teachers use teaching and management methods that are more traditional than those used by elementary teachers--either because secondary teachers have not been exposed to the innovative practices of the last decade or because they have not found these practices useful. For example, mastery learning is a rare approach in high schools. . . . To implement effective school programs, high school teachers will have to learn new approaches, not fine-tune familiar practices.

Based on his observations in a nationwide sample of more than 1,000 classrooms, Goodlad (1983) also describes a kind of "bland sameness" in the instructional strategies teachers employ. He noted that the teachers he observed had a limited repertoire of pedagogical alternatives and, specifically, that feedback and corrective learning activities designed to help students understand and correct their learning errors were almost nonexistent in most of the teachers' instructional designs. Furthermore, he found little evidence of any collaborative efforts among teachers and administrators to improve instruction.

In light of these findings, Goodlad argues that the school's culture must encourage and support alternative instructional ideas. He believes that schools can achieve this goal by providing more opportunities for teachers to become involved in research-based staff development programs. In addition, he stresses the critical function that instructional leadership can play in creating conditions that foster and facilitate successful staff development efforts. Goodlad notes that when the school establishes these conditions and provides staff development programs targeted at improving instruction, teachers often respond eagerly to alternative teaching methods.

Yet, despite the promise of improved instruction that effective staff development programs offer, it appears that most schools have not

enthusiastically embraced this method for achieving school improvement. In the Gall et al. (1982) review of the literature on effective inservice practices and their subsequent analysis of existing staff development programs, they found widespread discrepancies between those programs currently offered as professional growth activities for teachers and the kinds of programs that research has shown to be effective in promoting staff development. They report that "current inservice education appears to consist largely of unintrusive, comfortable experiences that reinforce prevailing patterns of school work. Experiences that seek to improve school work against measured criteria are uncommon" (p. 122).

During the past decade, research on instruction and the research on effective staff development practices have significantly advanced efforts to strengthen the instructional improvement process. Yet research findings in these two areas have not been meaningfully linked or consistently applied in any systematic fashion to most staff development programs currently offered to secondary school teachers. Our study hypothesized that teaching and learning performance in high schools could be improved if teachers were offered a staff development program that combined the findings from both these areas of research. Moreover, the study hypothesized that the effectiveness of staff development programs is strengthened when teachers are provided with support from their colleagues and the instructional leaders of the school, and when school policies enhance, rather than hinder, the instructional improvement process.

We tested these hypotheses by assessing the effects of a staff development model for secondary school mathematics teachers that was based on the findings from research on teaching and on effective inservice practices. The program's effectiveness was tested by measuring the degree to which teachers implemented the research-based instructional strategies the program

contained. In addition, our investigation explored the relationships between the extent of implementation and several other factors related to the school environment. Specifically, we sought to answer the following questions:

1. Did the teachers who participated in the staff development program implement the recommended teaching behaviors to a greater extent than did the nonparticipating teachers?

2. Did a relationship exist between the extent to which the participating teachers implemented the recommended instructional strategies and a) the amount and sources of collegial and administrative support the teachers reported receiving in their efforts to improve instruction, b) the instructional supervision and evaluation practices their schools employed, and c) the teachers' workload?

Chapter Two

Review of the Literature

This chapter reviews research on instruction and on staff development practices. Findings from these areas of research are discussed in terms of their relationship to the staff development model designed for and field-tested in this study. In addition, the chapter surveys the research on instructional leadership and on school policies concerning teacher evaluation procedures and teacher workloads.

Research on Instruction

According to Bloom (1981), a major revolution in educational research has taken place during the past decade. He considers the central feature of this revolution to be the shift in research away from the elements that are static in the teaching and learning process toward those elements that can be altered.

One of the alterable elements Bloom identifies is the amount of time students spend engaged in their learning, as opposed to the fixed amount of time allocated for instruction. Research on teacher effectiveness indicates that when teachers employ certain classroom management and organizational strategies, their students spend more time engaged in their learning (Anderson, Evertson, and Brophy 1978; Berliner, Fisher, Filby, and Marilave 1978; Emmer and Evertson 1980; Fitzpatrick 1982; Good and Grouws 1977; Stallings 1980). These findings suggest that teachers' managerial decisions can have a direct impact on the amount of time devoted to teaching and learning. Consequently, if teachers use effective management techniques the amount of learning time that occurs in classrooms can be positively altered regardless of the amount of time allocated to instruction.

A second alterable instructional component Bloom (1968) identifies is the use of formative testing and corrective procedures within the instructional design. The use of formative tests that provide students with feedback on their learning progress and that specify corrective procedures they should follow for remediation of their learning errors is, perhaps, the chief characteristic that distinguishes mastery learning instruction from conventional instruction. When the teacher incorporates formative testing and corrective feedback into the instructional plan, the gains in student learning are considerable. Over the past decade, research and development efforts in mastery learning have provided compelling evidence of the positive impact that the mastery learning process has on student achievement (Block 1974, 1979; Block and Anderson 1975; Bloom 1968, 1976, 1981, 1984; Guskey 1980, 1981, 1984; Guskey and Gates 1985). Recent analyses of the effects of mastery learning indicate that the mean achievement score of students receiving corrective feedback falls at the 83rd percentile on control group distributions (Walberg and Lysakowski 1982).

In addition to these findings, recent reviews of findings from teacher effectiveness research (i.e., Rosenshine 1983, Walberg and Lysakowski 1982) also emphasize the importance of the instructional principles of mastery learning, particularly the use of feedback and corrective stategies. Yet, despite this abundance of evidence, these instructional strategies are infrequently employed in most classrooms. For example, the classroom observation data that Goodlad and his associates (1983) reported indicate that less than 2 percent of instructional time in secondary classrooms is devoted to providing students with feedback related to their progress in learning and to the correction of their learning errors.

The reason that teachers rarely apply instructional principles of mastery learning in high school instruction may be that they are pressured to

"cover" content, a requirement that often conflicts with the goal of assisting students to attain mastery of their learning. In most high school classrooms, teachers resolve this conflict by letting content coverage take precedence over content mastery. Slowing down the pace or diminishing the scope of instruction by setting aside class time for feedback and corrective activities is considered to be too great a price to pay for implementing mastery learning.

The staff development program developed and tested in this study was specifically designed to minimize the time costs of mastery learning by maximizing the use of instructional time to the fullest advantage. The program focused on the positive alteration of both instructional time and formative testing practices. The intent of the program was to enable teachers to capitalize on the amount of time available for learning in two ways: first, by employing research-based classroom management and organizational strategies that increase the proportion of time actually used for instructional purposes and, second, by incorporating the instructional principles of mastery learning within this additional amount of time available for learning. In short, the program's content combined instructional practices drawn from research findings on classroom management and mastery learning.

Research on Staff Development

Most research on effective inservice practices has examined two major components related to the design of staff development models: first, the selection of the curriculum or content of the program and, second, the design of training activities the program provides. With respect to the content of staff development programs, it is clear that the findings from the teacher effectiveness research can contribute to improved programs. However,

findings from the research on staff development (i.e., Colaradarci and Gage 1984) have consistently indicated that simply providing teachers with access to research-based instructional strategies is not sufficient to alter existing patterns of the teaching/learning process. These findings suggest that the design of the training activities included in staff development programs must provide teachers with both intensive and extensive opportunities to incorporate the desired instructional strategies into their teaching repertoires.

Lawrence and Harrison's (1980) meta-analysis of inservice practices indicated that effective staff development programs incorporate opportunities for teachers to receive guided practice and feedback within intensive training programs. Similarly, in their review of research on implementation of effective teaching strategies, Fullan and Pomfret (1977) reported that guided practice and feedback are essential components of successful staff development programs. Furthermore, the research findings of Joyce and Showers (1981) underscore the effectiveness of extensive staff development training programs that consistently provide support and follow-up activities. They recommend that staff development programs include intensive training in and demonstrations of the desired instructional strategies, as well as guided practice, feedback, and coaching in the application of the strategies.

Providing the opportunity for teachers to discuss the application of effective teaching practices recommended in training sessions is also an important component of successful staff development programs. In the I/D/E/A study of school change, Bentzen (1974) reported that greater improvements in performance occurred when teachers discussed their instructional concerns and engaged in problem-solving activities. The training programs Evertson, Emmer, Sanford, and Clements (1982) designed include time for teachers to discuss the application of the effective managerial strategies; and these

programs, too, have been found to help teachers improve their classroom management and organization. Finally, the Effective Use of Time Program designed by Stallings (1980) provides extensive opportunities for teachers to exchange ideas and to consider in a collegial setting the solutions to teaching/learning problems.

Effective staff development models should also provide teachers with the opportunity to observe each others' classrooms. Research has shown that peer observation is highly effective in helping teachers to become more aware of their own instructional behavior and to improve their ability to analyze the teaching process. In their study of collegial evaluation, Roper, Deal, and Dornbusch (1976) reported a significant improvement in teaching performance for those teachers who were given the opportunity to observe each other. Berman and McLaughlin (1978) also cited peer observation as a requisite component for successful change efforts.

Further evidence on the importance of peer observation is provided by Sparks (1983). Her comparison of three staff development models indicated that the greatest improvements in teaching performance occurred in a group that attended workshops and participated in peer observations, as compared to a group that participated only in the workshops and a group that attended the workshops and received individual coaching from a trainer. In discussing her findings, Sparks noted that the peer observation process provided teachers with objective feedback on their instructional performance. This information was then analyzed, and appropriate changes or modifications were suggested, based upon the effective teaching practices contained in the training program. In addition, teachers also benefited from observing one another because it gave them the opportunity to view another teacher in action, which, in turn, provided them with new ideas and strategies for implementing effective teaching practices in their own classrooms.

Despite the fact that the number of experimental studies on staff development is still relatively small, the findings from these studies are most encouraging. In his review of the literature on the effects of inservice education, Gall et al. (1982) noted that those studies that have employed an experimental design have clearly demonstrated the positive effects of inservice education on the capacity of teachers to improve their students' achievement. The experimental studies they cited in their review include those conducted by Stallings (1980); Anderson, Evertson, and Brophy (1978); Good and Grouws (1977); and Crawford et al. (1978). In each of these studies one group of teachers participated in a training program. Following the training period, program effects were measured by assessing the extent to which teachers' implemented the teaching strategies recommended in the training program and by measuring the improvement in their students' performance. Each of these programs was designed to encourage teachers to use strategies that previous research had found to correlate positively with improvement in student achievement. The outcomes of these studies indicated that teachers in the treatment group employed the recommended instructional strategies to a far greater extent than teachers not so trained, and the rate of academic engaged time and level of achievement of students whose teachers received training was significantly higher than it was in the control classrooms.

In summary, research on inservice practices has begun to provide a framework for instructional improvement through staff development. Findings from inservice research have yielded a set of guidelines for the design of effective staff development programs. These guidelines were applied to the selection of the content and to the design of the staff development program conducted in this study. A complete description of the program is given in Chapter 3.

Instructional Leadership Support Functions

The importance of the relationship between instructional leadership and the quality of instruction has been underscored in numerous school effectivness studies (i.e., Purkey and Smith 1982, Edmonds 1979, Rutter et al. 1979). Some of these studies have described instructional leadership as the process of carrying out a set of functions that facilitate instructional improvement. This research perspective, which does not restrict leadership analysis to the personal and stylistic characteristics that distinguish successful instructional leaders from less effective ones, is similar to the recent shift in emphasis in research on teacher effectiveness from an analysis of the characteristics of effective teachers to the study of the components of the instructional process. These new lines of inquiry, in both the research on instructional leadership and on teaching, appear to hold a greater promise of identifying the key ingredients that lead to instructional improvement.

Research on dissemination efforts supporting school improvement highlights the importance of effective instructional leadership. Berman and McLaughlin's (1978) study of the implementation of federally funded instructional improvement projects strongly suggests that these improvement programs were relatively successful because they received substantial administrative support. Similarly, Stallings and Mohlman (1981) indicated that, in their study, the greatest improvements in instructional behavior occurred in those schools where the principals provided assistance and support to the teachers. Likewise, in their synthesis of the research on improving schools, Lieberman and Miller (1981) emphasized the importance of the principal's role in providing instructional support that facilitates improved teaching performance.

Despite the fact that a clearer definition of instructional leadership could be obtained if research in this area focused on the behaviors and functions of effective principals, to date only a few studies have done so. Martinko, Yukl, and Marshall's (1983) research review revealed that little attention has been given to the behaviors or characteristics that distinguish effective secondary principals from less effective principals in terms of their roles as instructional leaders. Similarly, Daresh and Liu (1985) found only a limited amount of research that investigates the specific behaviors of instructional leaders at any level.

Despite the paucity of such research, recent studies on instructional leadership have identified certain distinct support functions that are essential to improved instruction. In De Bevoise's (1983) review of the research on the principal as instructional leader, she highlighted a set of leadership functions that consistently appear in the research literature. Among the functions that principals should emphasize are: communicating a vision of the school's purposes and standards, monitoring student and teacher performance, recognizing and rewarding good work, and providing effective staff development programs.

In a related area, Russell, White, and Maurer (1984) studied the functions of instructional leadership by using the "critical incident" technique to link the behaviors and activities of secondary school principals to school effectiveness. After completing a lengthy and rigorous verification process, they narrowed the number of identified behaviors from 1,038 to 337. They then classified the behaviors according to their relationship to eight characteristics derived from a review of effective schools literature. Both effective and ineffective principal behaviors were identified for each characteristic. Figure 2-1 summarizes their findings.

Figure 2-A
Instructional Leadership for Teachers

Effective Behaviors

A. Takes an active role in planning, conducting, implementing, and evaluating inservice training
B. Provides direction and support for individual teachers to eliminate poor instructional performance
C. Provides direct instructional leadership in one-on-one interactions with individual teachers
D. Makes sure specifics of each teacher's classroom performance are evaluated
E. Hires an effective staff

Ineffective Behaviors

A. Does not provide effective feedback on instructional skills
B. Denies importance of inservice programs
C. Does not provide adequate classroom evaluation
D. Hires teachers without an emphasis on teaching performance
E. Does not require teacher improvement

(Source: Russell et al. 1985, p. 8)

Bauchner and Loucks' (1982) study on the role of building administrators in the instructional improvement process has also provided some clues to effective instructional behavior. Their study indicated that the amount of assistance teachers reported receiving from principals when implementing new practices was related to three conditions: 1) the perceived benefits teachers attribute to the use of the practices, 2) mastery of the related instructional strategies, and 3) fidelity in applying the practices. Cox (1983) has categorized the types and conditions of support teachers in his study reported receiving from their principals. She found that teachers felt they were receiving support when:

- all instructional staff were aware that the successful implementation of the practice was a top priority
- requisite materials were available
- teachers had ready access to personnel within or outside the district who knew about and were experienced with the practice

- teachers were given time to actually use the practice through help with classroom scheduling and through facilitating schoolwide scheduling

- the schoolwide climate was conducive to continuous, systematic problem solving

- teachers understood the expectation that all the components of the practice were to be implemented

- teachers had the freedom to determine the means they would employ to meet the expectations

- teachers, parents, and central administrators were working in a realistic time frame and did not feel pressured by premature evaluations.

Gersten and Carnine (1981) have further articulated the notion of instructional support functions. They identified six instructional leadership functions that promote instructional improvement. They believe instructional leaders should:

- use programs of known effectiveness

- demonstrate visible commitment to the program

- provide emotional support and incentives to teachers implementing the program

- monitor student achievement

- monitor instructional performance

- provide teachers with specific, concrete technical feedback and assistance.

Gersten and Carnine argue that it is essential that these functions are fulfilled; however, principals need not be the only instructional leaders in the schools. Rather, they found that supervisors and teachers can perform this set of support functions just as well or better than principals. In another study of principal behaviors, Pitner and Charters (1984) also argued that the functions of instructional leadership need not be carried out solely by the principal.

Little (1982) has advanced a similar perspective on the issue of

support for instructional improvement. She also believes that teachers and administrators should share responsibility for fulfilling instructional leadership functions and that this sharing may be the best means of realizing and sustaining significant improvement of instructional performance.

Although the results of studies on instructional leadership have consistently indicated a strong and positive relationship between instructional leadership functions and school effectiveness, most research has used descriptive and correlational designs. However, Gall and his associates (1984) recently carried out an experimental investigation of the impact of instructional leadership skills on instructional improvement and found that involving principals in a staff development program increased implementation of the program's objectives. The researchers concluded that if principals assume a more active instructional leadership role, they can selectively direct teachers' attention to particular instructional improvement objectives and can help teachers maintain improvement over time.

Our study provided a further investigation into the relationship between instructional support functions and teachers' efforts to improve their instructional practices. Our research is similar to the research of Gall and his associates in that they both provided principals and other administrators with training in effective ways to fulfill their role as instructional leaders. The present study is also similar to the research of Bauchner and Loucks (1982). The teachers participating in their study were asked to report on the support they had received from their principals while they implemented the teaching strategies presented in the staff development program. Our study also asked teachers to supply such information. However, rather than limiting teachers' responses to the amount and types of support they had received from their principals, as in the Bauchner and Loucks study, we explored a broad range of supportive behaviors and added several other

potential sources of support. Both the administrators' training program and a description of the measures employed to assess the amount and sources of support that the teachers received when implementing the research-based instructional strategies included in the staff development program are described in Chapter 3.

Instructional Supervision and Evaluation Procedures

Previous research on instructional supervision and teacher evaluation has provided evidence that a relationship exists between certain dimensions of the supervisory process and teacher internalization of the process. Because our study investigated similar relationships, a brief review of the literature on this topic is useful.

Natriello's (1984) review of research on instructional supervision examined the relationship between teachers' internalization of the evaluation process and two factors related to the process, namely, the frequency of evaluations they received and the amount of influence they had over the supervisory process. In his analysis, Natriello included two important indicators of teacher internalization of evaluation processes: 1) the extent to which teachers believed the supervisory process helped improve their performance and 2) the amount of leverage they reported having over their own performance. Leverage, as Natriello defines it, refers to "the relationship between the effort put forth by a performer and the outcomes that result from that effort." Thus, in the case of assessing leverage over instructional performance, teachers were requested to assess the impact of their efforts to improve instruction on their students' learning achievements. Natriello found that both indicators of teacher internalization of the evaluation process--helpfulness of the supervisory procedures and leverage--were based upon teachers' perceptions of their own instructional performance. Earlier

studies by Thompson (1981), Natriello and Rowe (1981), and Natriello and Cohn (1983) focused exclusively on teachers' reports concerning the helpfulness of the supervisory procedures.

Data collected from all these studies indicated a positive relationship between the two indicators of teacher internalization of the evaluation process (helpfulness in improving instruction and increased leverage over performance) and the two dimensions of the supervisory process (the frequency of evaluation and the amount of influence teachers have over the process).

Our study also examined the relationship between various dimensions of the supervisory process and instructional improvement. In our research, however, we analyzed additional elements of the evaluation process. In addition to examining the frequency of evaluations and the amount of influence the teachers had over it, we also examined the following dimensions: the teachers' perceptions of the responsiveness of the evaluation process to individual teaching circumstances, the clarity of the feedback the supervisory process provided, the extent to which the evaluations were based on objective data concerning instructional performance, and the extent to which the evaluation process assisted teachers in improving their instruction.

In contrast to Natriello's study, in which teachers' perceptions of instructional improvement were assessed, we assessed the teachers' instructional behaviors directly, that is, we measured how frequently the participating teachers applied the strategies recommended in the staff development program. Thus, our study provides a descriptive analysis of the instructional supervision procedures and processes used in the participating secondary schools and investigates whether there was a relationship between these characteristics and the improvement of instruction, as measured by the

extent to which the teachers implemented the recommended instructional strategies.

Teacher Workload

Another policy issue included in our study involved the teachers' workload. Other than studies focusing on class size, there has been little research on the amount of work assigned to teachers. Research has not fully addressed the relationship between teachers' efforts to improve instruction and such factors as the number of classes taught, the number of different lesson preparations, the amount of time available during the school day to prepare lessons, and the amount of school-related responsibilities in addition to teaching (i.e., hall duties and extracurricular activities). Even though research on teaching has begun to identify instructional practices that appear to make an important difference in student learning, it is not yet clear whether those teachers who are assigned heavier workloads can apply these teaching strategies to the same extent or as effectively as teachers who have lighter workloads.

Despite the paucity of research on the effects of teacher workloads on the quality of instruction, recent studies have suggested that a heavy workload is one condition that severely limits teachers in the effectiveness of their instruction in secondary schools. For instance, in his study for the Coalition of Essential Schools, Sizer (1984) recommends the following set of principles:

- Teaching and learning should be personalized to the maximum feasible extent. Efforts should be directed toward a goal that no teacher have direct responsibility for more than eighty students.
- Ultimate administrative and budget targets should include, in addition to total student loads per teacher of 80 or fewer pupils, substantial time for collective planning by teachers. (pp. 226-27)

In order to investigate the impact of teachers' workloads on instructional performance, we examined the relationship between the extent to which participants in the staff development program implemented the recommended instructional strategies and their assigned workload. Chapter 3 describes how this relationship was examined.

Chapter Three

Research Methodology

Research Design

The first research question posed in Chapter 1 was answered by using a pretraining/posttraining, experimental-group/control-group design. The question focused on the extent to which participants and nonparticipants in the staff development program implemented the recommended research-based instructional strategies. Schools were assigned to the treatment and control conditions in March 1984. One class of each of the participating teachers in the control and treatment schools was observed for five consecutive days in May 1984, before the staff development program was presented. Two five-day observation periods were conducted in October 1984 and November 1984, after the program was administered. Classroom observers collected data on the instructional strategies the teachers employed and on the number of students engaged in off-task behaviors.

A static-group comparison (conditional) design, using only teachers in the treatment group, was employed to determine the answer to the second research question. This question asked whether there was a relationship between the extent of implementation of the instructional strategies and the amount of support the teachers received, their workloads, and the instructional supervision and teacher evaluation procedures used at their schools. Surveys were administered in February 1985 to the treatment-group teachers. The survey asked these teachers to assess the level of support they had received for improving instruction and to describe the level of their workload and their schools' instructional supervision and evaluation procedures.

Recruitment of Sample

Recruitment of Districts. Six school districts in the suburban Chicago, Illinois area were invited to participate in the study. The districts were selected on the basis of the comparability of the communities they served and on the size of their schools. In addition, each district involved in the study had initiated efforts during the 1983-84 academic year to improve their instructional programs. These efforts consisted primarily of appointing a district task force to review existing curriculum and instructional practices and to develop a set of recommendations for targeting their school improvement plans. Thus, when these districts were invited to participate in the study they considered their involvement with the project to be complementary to the objectives of their instructional improvement plans; and, consequently, they responded enthusiastically to the invitation to participate.

Three districts were assigned to the treatment condition and the other three to the control condition. The training components of the project were administered to teachers in the treatment districts beginning in May 1984; the control districts were offered the opportunity to participate in the program the following year.

Recruitment of Schools and Teachers. The districts were informed that the project would focus on applications of research-based instructional principles within high school mathematics courses. Hence, the teacher training components of the project were provided exclusively to secondary school mathematics teachers. Since a major emphasis of the teacher training program was to foster collegial teamwork, we decided that each school within the participating districts should be represented by at least three teachers. Thus, the selection of the participating schools was dependent upon the

number of teachers willing to participate in the program.

The teacher training component of the project required participants to attend a five-day seminar in the summer, in addition to three follow-up sessions scheduled during the first semester of the following academic year. Since the staff development program required a time commitment beyond the teachers' contractual responsibilities, it was necessary to rely upon the teachers' voluntary participation in the program. However, participants were also given incentives to participate. Arrangements were made to award three hours of graduate credit from the University of Oregon to program participants. Participants had the option to receive up to $250 as a stipend in lieu of course credit, depending on the level of support each district provided to teachers who participated in district-sponsored summer workshops.

In March 1984, program announcements were forwarded to mathematics teachers at each school within the participating districts. The announcements briefly described the program, the incentives for participation, and the time commitment required. The announcements also requested teachers to permit observations of one of their classes for five consecutive days in the spring of 1984 and for two five-day observation periods in the fall of 1984. In addition, the announcements sent to treatment-group teachers specified the dates for the program activities in 1984, whereas the announcement sent to control-group teachers notified them that the program would be offered the following year. Teachers were given a deadline of April 30, 1984 to decide if they were interested in participating.

Forty teachers from ten schools decided to participate. The original guidelines allowed a particular school to be involved in the program only if at least three teachers from the school volunteered to participate. However, after the initial responses had been received, there were a few teachers in

two treatment schools who decided to withdraw from the program or who requested to participate in the program after the registration deadline. In each of these instances their change of plans involved personal reasons (i.e., change in summer vacation plans) rather than school-related ones, so those two schools were allowed to participate even though they were represented by less than three teachers. Each of the remaining eight schools were represented by at least three teachers.

The total number of schools within the treatment districts was 7, and 21 teachers from these schools participated. The control districts were represented by 19 teachers from 3 schools. Table 3-1 provides information on the numbers of schools and teachers in the treatment and control groups.

Table 3-1
Treatment-Group and Control-Group Composition

	Schools	Teachers
Treatment Group		
District 1	4	9
District 2	2	9
District 3	1	3
Subtotal	7	21
Control Group		
District 4	1	10
District 5	1	4
District 6	1	5
Subtotal	3	19
Total	10	40

Description of Districts and Schools

Each of the six participating districts were located in suburban Chicago, Illinois. The districts served middle-class communities and were

located within 15 miles of each other. The number of high schools within each district ranged from two to four.

All the participating high schools provided instruction for grades 9-12, and the student enrollment at the participating schools ranged from 1,500 to 2,100 students. Students were allowed to enroll in classes according to their completion of any specified prerequisites or, in the instance of entry-level classes, on the basis of teachers' recommendations. The schools' mathematics instructional programs were similar in terms of the courses offered (from general mathematics to calculus) and in terms of the grade level at which students could take the courses.

Description of Teachers

The teaching experience of participating teachers ranged from 3 years to 23 years. Approximately half the teachers held master's degrees. Although the extent of the teachers' training and experience varied considerably, their past involvement in district-sponsored staff development activities was quite similar. The staff development programs that the districts provided typically included full-day inservice workshops (i.e., Teachers' Institute Days) held at the beginning of the school year, and three or four two-hour inservice sessions scheduled periodically throughout the year. The full-day workshops offered a range of topics: learning to administer CPR, identifying suicidal tendencies in adolescents, planning for retirement, and using teaching strategies from Hunter's (1976) "Instructional Theory into Practice" model. Most of the two-hour inservice sessions were not related to the workshop topics. Instead, these sessions were usually devoted to individual department meetings at which curriculum-related issues, such as the selection of new textbooks, were discussed. Occasionally, a formal program was planned for the two-hour inservice sessions. However, the

agenda for these programs often included school-related issues, such as policy revisions, or procedures concerning student grade cards, progress reports, or attendance lists. In a few instances the program for the shorter inservice sessions included presentations by community agencies. For example, the Chamber of Commerce had conducted a program on developing partnerships between schools and local businesses, and local health agencies had presented sessions that provided strategies to help prevent drug and alcohol abuse by adolescents.

Staff Development Program Description

The staff development program developed for this project was designed to help secondary school teachers minimize the time costs of mastery learning by maximizing the use of instructional time. As noted earlier, both the selection of the program's content and the design of program activities were research-based. Specifically, the content of the program was drawn from the research on classroom management and mastery learning, and the training activities incorporated practices that staff development research had identified as effective.

The program included three major sets of activities. The activities were designed to provide teachers with direct support and assistance in their efforts to apply the research-based instructional strategies in their classrooms. These activities include a five-day summer seminar, three one-day follow-up sessions scheduled approximately one month apart during the first semester of the following academic year, and peer observations and coaching. These program components are described in the following sections.

Summer Seminar

The first set of program activities was a five-day summer seminar that introduced the teachers to classroom management and organizational strategies and the principles of mastery learning. A research-based rationale for these instructional strategies was presented, and evidence that links classroom management strategies with student academic engagement and that demonstrates the effects of corrective feedback on student achievement was highlighted. In addition, teachers received sample lessons that incorporated these instructional design components. Although the sample lessons were offered as examples of how the research-based principles could be applied, we emphasized that there was no one "correct" way to apply the strategies and that the lessons were not intended to be a formula or recipe for effective instruction.

The classroom management and organizational strategies in the staff development program were divided into two categories: those that help to establish an effective classroom management system and those that help to sustain it. Briefly, the management strategies that can foster a productive learning environment include establishing clear expectations and consequences for student academic and behavioral performance, eliminating or minimizing interruptions of instructional time, and maintaining an academic focus. Those strategies that can serve to sustain an effective management system include monitoring student behavior, planning for smooth transitions between instructional activities, holding students accountable, and establishing a positive classroom climate.

The presentation emphasized that perhaps the key underlying factor that accounts for the effectiveness of these classroom management strategies is that they are preventative measures as opposed to reactive steps taken in response to discipline problems. Thus, one of the aims of the staff

development program was to provide teachers with an opportunity to formulate some of their instructional decisions from a proactive, rather than a reactive, stance. During the summer seminar the teachers were presented with a series of guiding questions regarding the management and organization of their classrooms (e.g., How will teachers communicate their expectations for student academic and behavioral performance? How can teachers eliminate or at least minimize interruptions of instructional time?) These questions were posed to help seminar participants consider how they could most appropriately apply the research-based managerial strategies in their classrooms.

The presentation on the instructional principles of mastery learning recommended that teachers include formative testing and corrective procedures within the instructional design. Teachers were informed that formative tests can provide students with feedback on their learning progress and can specify corrective procedures for them to follow for remediation of their learning errors. Teachers were discouraged from relying solely on summative tests, which simply rank students according to how well they have learned the content and objectives of the course. Instead, teachers were encouraged to administer formative tests, which provide students with feedback and require them to complete corrective learning activities if their test-performances are not adequate.

To help teachers plan for incorporating the principles of mastery learning within their instructional design, the following components of instructional planning were discussed: identifying unit objectives, sequencing learning objectives, dividing learning objectives into meaningful units of instruction, and determining mastery standards. The design and use of formative tests for diagnostic purposes, the development of corrective procedures to remedy identified learning problems, and enrichment opportunities for students who initially demonstrate a mastery level of

achievement were also discussed. Seminar participants were reminded that including corrective feedback within the instructional design can prevent students from wasting time repeating their previous errors and can help teachers use instructional time more effectively because corrective feedback helps them to identify and remediate students' learning problems. Furthermore, the feedback-corrective function provides greater assurance that students understand the concepts or skills contained in one unit before they move to more difficult units. Thus the continuity of the learning process can proceed smoothly because students are prepared for each successive stage of learning. Another virtue of this technique is that it allows students in need of assistance to follow corrective procedures, while those students who have achieved a mastery level of performance have the opportunity to extend their understanding of the skills or concepts by completing additional learning activities that challenge them.

Throughout the seminar, the importance of the congruence of these instructional design components was stressed. It was emphasized that teachers should take care to ensure that learning objectives are clearly and precisely stated, that the lesson is focused on mastery of these objectives, and that the tests administered to assess student performance relate directly to these specific objectives.

Following the discussion on instructional design components, the seminar addressed the implications of mastery learning on the students' role in the learning process. Teachers were introduced to a basic principle of mastery learning: students are not allowed to move from one unit to the next until they have shown sufficient understanding of prior instructional units. In some cases, the fact that corrective procedures will be administered if the student does not achieve a mastery level of performance on the formative assessment of progress may require the student to develop attitudes different

from those he or she has had in previous courses. Thus, the training program stressed the need for teachers to inform students of the standards they are expected to achieve and of the responsibilities they need to assume for their own performance.

In the seminar a discussion was also held on the implications of mastery learning on the pacing of instruction and the grading of student performance. The program director suggested ways that teachers could adjust the pace of instruction appropriately by employing the principles of mastery learning. It was also suggested that the formative assessment tests be used only for diagnosing the students' level of understanding and for specifying corrective activities to remediate learning errors; thus, summative tests could be used exclusively for grading purposes. Throughout the training program, time was allotted for clarifying and resolving any concerns the teachers had about these issues.

During the seminar, teachers were divided into content area teams. Each team developed lesson plans for instructional units they planned to teach in the fall. By working together in teams, the teachers not only completed some advance planning but also had the opportunity to receive feedback on their plans from both the program director and their colleagues. Furthermore, the team planning sessions gave the teachers an opportunity to broaden their instructional repertoires by drawing from the strengths of the various teaching styles of the team members. At the conclusion of the seminar the teachers were requested to prepare an additional set of lesson plans that incorporated the research-based instructional principles.

Lastly, the teachers were asked to prepare for the first follow-up session a one- or two-page written overview of their use of the classroom management and mastery learning principles within the lesson designs for material they would be teaching during the first two weeks of the school

year. They were directed to include both a description and an analysis of their experience in introducing their students were introduced to mastery learning instruction, the formative assessment process, alternative corrective and enrichment learning activities, and strategies they found to be effective for implementing the classroom management principles.

Follow-Up Sessions and Peer Observations

The purpose of the three one-day follow-up sessions, each scheduled approximately one month apart during the first semester following the summer seminar, was to provide teachers with ongoing assistance in their initial classroom application of the research-based instructional strategies. These sessions gave the teachers an opportunity to share with one another both their difficulties and their successes in using these ideas. Like the team planning sessions, this exchange of ideas helped increase the number of options the teachers had for managing their classrooms and for applying the principles of mastery learning.

During the first follow-up session, teachers exchanged additional lesson plans they had designed. Also, they were given the opportunity to share their concerns about the use of the research-based instructional strategies. In these problem-solving sessions, the teachers discussed alternative ways to deal with these concerns, as well as considered ways to troubleshoot other potential obstacles in implementing the strategies.

At the first follow-up session, the teachers were also given training in peer observation techniques. The trainer emphasized that the purpose of the observations was to provide objective, descriptive, nonjudgmental feedback to each other. It was noted that the peer observation process allowed teachers to act as mirrors for each other because they were collecting descriptive observational data that reflected the extent to which

their actual instructional practice matched their intended application of the research-based instructional strategies. Moreover, by serving as observers, they could discover alternative approaches to applying these instructional practices, which in turn could provide them with additional ideas for using these strategies effectively in their own classrooms.

During the first semester after training, each teacher was involved in a minimum of two observation cycles. Consequently, one of their colleagues observed them twice, and they observed one of their colleagues at least twice. The teachers were given the opportunity to choose which of their colleagues they wanted to observe their class. Substitute teachers were used to cover classes for teachers scheduled to observe during their usual class times.

At the second follow-up session, the lesson plans the teachers had submitted at the first session were returned. Suggestions were based upon the feedback received at the first session and upon the program director's individual recommendations. The teachers were then requested to prepare at least one additional set of lesson plans to be shared at the next session. In addition, at the second follow-up session the teachers discussed their experiences as peer observers and as coaches and shared teaching ideas they had gained from observing each other. An additional observation cycle was then scheduled to follow this session.

The teachers reconvened about one month later. In this final follow-up session, teachers shared their concerns and suggestions, discussed effective instructional strategies they had observed in each other's classrooms, exchanged the lesson plans they had designed, and considered their future applications of the research-based principles in other courses.

During each of the three follow-up sessions the teachers were offered additional research-based information that could reinforce their applications

of the strategies presented in the summer seminar. Specifically, an overview of the research on problem-solving, student learning styles, and cooperative learning environments was given. This information was intended to help the teachers consider the multiple dimensions of their instructional decisions and to enhance their appreciation of the impact that those decisions have on their students' achievement.

Overall, the staff development program provided the teachers with a summer seminar that gave them intensive training in research-based instructional strategies and with follow-up sessions that provided them with an extensive support system. The follow-up sessions also strengthened the teachers' efforts to implement these strategies by allowing them to observe and coach one another.

Administrators' Training Program

In addition to the teacher training components of the staff development program, the program included a two-hour seminar for the administrators of the participating schools. The seminar was held in May 1984, prior to the teachers' training program. Although efforts were made to schedule the seminar on a date convenient for everyone, a few administrators were nevertheless unable to attend the May seminar. Thus, the seminar was offered again in September 1984 for those who did not attend the first session.

Seminar participants included all district-level and building administrators, as well as instructional supervisors (i.e., department chairpersons). The seminar gave participating administrators an overview of the research-based instructional principles included in the teachers' training program, and a discussion of their implications was held. Issues discussed included the role of the student in the learning process, classroom

management concerns, the pacing of instruction, and the grading of student performance.

The program director also suggested ways for administrators to support the teachers in their efforts to implement the recommended instructional strategies. These support strategies, drawn from the research on effective schools, included administrative support functions (Gersten and Carnine 1981), the instructional leadership behaviors linked to the characteristics of effective schools (Russell and White 1980), administrative behaviors related to instructional improvement (Bauchner and Loucks 1982), and the leadership functions that facilitate the implementation and effectiveness of staff development programs (Gall et al. 1984).

Administrative strategies for strengthening the teachers' instructional improvement efforts included:

- advocating the commitment to help students achieve a mastery level of performance
- helping teachers overcome obstacles to implementing mastery learning strategies
- monitoring instructional performance and providing feedback
- understanding that teachers' initial efforts to implement the recommended instructional strategies may be somewhat awkward at first
- providing teachers with encouragement by recognizing their accomplishments
- providing teachers with opportunities to share instructional ideas with each other by scheduling peer observations and collegial planning sessions.

The administrators were also encouraged to attend the summer seminar and follow-up sessions offered to participating teachers. Administrators were notified of the date and location of each session three weeks in advance. Although none of the administrators attended all of the sessions, at least one administrator represented each district during each portion of

the teacher training program. The administrators who attended these sessions included both building-level and district-level administrators.

Observational Measures of Classroom Instruction

The first research objective was to compare the instructional behaviors of those teachers who participated in the staff development training program--the treatment group--to the teaching behaviors of those who had not been involved in the program--the control group. A classroom observation instrument developed for this purpose was used throughout the observation process. Observation data were used to determine the extent to which participating teachers implemented the research-based instructional behaviors presented in the staff development program and to assess the number of students engaged in off-task behaviors in the treatment and control classrooms.

Teachers in both the treatment and control groups were observed on a pretraining/posttraining basis. During the spring of 1984, prior to the summer seminar, each teacher was observed for five consecutive days. The same class was observed each day. Observations were repeated twice during the first semester of the 1984-85 academic year. The first posttraining observation occurred in October, between the first and second follow-up sessions; and the second posttraining observation was conducted in November, two weeks after the second follow-up session. Observations were scheduled so that they occurred at the beginning of an instructional unit.

The observation instrument was designed so that it could also be used to assess the amount of instructional time allocated to several instructional functions beyond those recommended in the staff development program. This made it possible to determine not only whether the treatment-group teachers applied the recommended instructional strategies after training, but whether

they redistributed class time across various instructional functions in order to accommodate the implementation of the recommended teaching strategies. Consequently, the classroom observation instrument was designed to assess the amount of class time the teacher allocated to the following instructional functions: reviewing and correcting homework, presenting new concepts and skills, providing opportunities for students to practice new skills and concepts, conducting formative assessments of students' progress, helping students complete corrective and enrichment learning activities, directing students to complete practice exercises independently, and administering quizzes. In addition, the instrument was used to record the amount of class time spent in transition between instructional activities and in nonacademic interaction. Observers coded the occurrence of these events at one-minute intervals throughout the instructional period. At five-minute intervals they recorded the number of students who were off-task.

The observation instrument, entitled "Instructional Functions Time Allocation Observation Instrument," is presented in Appendix A. The instructions give the classroom observer guidelines to follow while observing the teachers. The guidelines also provide an explanation of the coding procedures and definitions of the terms related to each instructional function. The cover sheet of the observation instrument was used to record the name of the observer and teacher, the date of the observation, the name of the school, the title of the course, the number of students attending class, and the time class began and ended. The classroom observers were informed verbally and in writing that the information being collected was for the sole purpose of educational research and that the names of individual observers, teachers, and schools would not be included in any subsequent reports concerning the classroom observations. The teachers and administrators of the participating schools also received assurances of

confidentiality.

The instrument contains two pages of coding sheets to be completed during the observation. It has space to record data throughout a one-hour instructional period. The first 17 rows of the instrument give the observation variables, and the columns represent each minute of instructional time. Observers use a stopwatch to determine each one-minute interval. At the end of each interval the observer simply circles the code letter that represents the teacher's instructional behavior. If more than one instructional behavior occurs during the one-minute interval, the observer circles the code for each behavior. In such cases, fractional values are assigned to the specific behaviors.

With one exception, the rows contain variables concerning teachers' instructional behaviors. The exception is the row that refers to the number of students off-task. At five-minute intervals, the observers record the number of students off-task during that one-minute interval.

Training the Classroom Observers

The classroom observers were certified secondary school teachers who usually worked as substitute teachers. The participating school districts recommended specific individuals to serve as observers. During the pretraining teacher observations four observers were employed. Another observer was added for the posttraining observations in October and November 1984, because transportation difficulties limited one of the original observer's ability to travel between schools.

A two-day observer training program was conducted during the first week of April 1984, prior to the pretraining teacher observations. The training program introduced the observers to the observation instrument and provided them with an explanation of the coding process. The observers then

practiced observing secondary school mathematics classes in a nonparticipating school district that was located in a community similar to the communities served by the participating districts. Fortunately, some of the teachers being observed during this observer training period had participated the previous year in a staff development program on the instructional principles of mastery learning. This gave the observers an opportunity to observe the strategies being used in the classroom and improved their ability to distinguish among the various types of behaviors to be recorded.

After each of the three practice observations held on the first day of training, the observers met to discuss their experiences and to clarify any difficulties they had when coding the observed instructional behaviors. On the following day, they observed two classes and then held a discussion. Since the observers did not raise any questions or concerns at this time, the principal investigator decided to measure the extent of agreement among the observers. This measurement was to be based on the observers' coded responses from the next three observations.

The reliability measurement for the observations was determined by calculating the extent to which the observers' coded responses agreed with those of the principal investigator, who observed and coded the same classes as the trainees. Thus, a criterion-related agreement score was computed for each observer. The agreement scores ranged from 85 percent to 93 percent.

The observer training program was repeated in September 1984, prior to the posttraining teacher observations. The training activities were identical to those described above. Following the second observer training period, extent-of-agreement scores were again calculated, using the same method as before. The agreement scores at this time ranged between 83 percent and 91 percent. Table 3-2 summarizes these agreement data.

Table 3-2
Criterion-Related Agreement of Classroom Observers

April 1984 (First training period)		September 1984 (Second training period)	
Observer 1	93%	Observer 1	91%
Observer 2	85%	Observer 2	85%
Observer 3	90%	Observer 3	83%
Observer 4	91%	Observer 4	82%
		Observer 5	85%

Throughout the entire study, the principal investigator monitored the observation process by asking observers about their concerns related to the observations. The only problem was related to rescheduling observations if either the observer or teacher was ill. No concerns or questions directly related to coding instructional behaviors were raised.

Survey Measures

Another objective of this study was to explore the relationships between program implementation and certain conditions that existed in the schools. These conditions included the support teachers received while implementing the research-based strategies, their workload, and the teacher evaluation procedures at their schools. The following sections describe the survey instruments designed to assess these factors.

Instructional Leadership Support Functions

One of the survey instruments in this study asked teachers to describe the amount and sources of instructional support they received in their efforts to implement the research-based instructional strategies contained in the staff development program. In a similar study of the role of administrators in the improvement of practice, Bauchner and Loucks (1982)

asked teachers to report the amount of assistance they had received from their principals while implementing new practices. However, the present study extended the data collection to include the teachers' perceptions of the role that other individuals within the school, in addition to the principal, played in supporting the instructional improvement process. Thus, the participating teachers were asked to describe the amount of support they had received and to identify the source of the support. A survey instrument designed for this purpose was used to collect their responses.

The survey instrument was adapted from the User Questionnaire designed by The Network for their project entitled "A Study of Dissemination Efforts Supporting School Improvement." A copy of the survey instrument that was used appears as Appendix B. The first item in the survey asked teachers to evaluate the usefulness of the instructional strategies presented in the program by comparing the advantages and disadvantages of employing the strategies. A 5-point response scale was used.

The amount, sources, and usefulness of the support the teachers received were determined on the basis of their responses to survey items 2 and 4. The amount of support the teachers received was assessed within three categories ("not at all," "sometimes" and "frequently"). The teachers were also asked to identify the sources of the support they had received and to indicate how frequently the following individuals assisted them: principal, assistant principal, fellow teachers, department head, superintendent, assistant superintendent, and the training director.

Lastly, the survey assessed types of support teachers received. These included training in using the research-based strategies, opportunities to observe the instructional practices, moral support for trying to implement new strategies, availability of materials, opportunities for problem-solving sessions, help in securing resources, information on the goals and focus of

the instructional strategies, information about implementing the strategies, and information about the impact of their efforts to apply the strategies in their classes.

The survey also contained three open-ended questions (Items 3, 5, and 6). Item 3 asked teachers to identify the one individual who had been most helpful to them in their implementation efforts. Items 5 and 6 were included to explore the teachers' perceptions concerning the ideal amount and sources of support that could have been provided, as well as their perspectives on any school-related obstacles they encountered in their efforts to implement strategies.

The training director administered the instructional leadership support survey at the third and final follow-up session in February 1985. The survey was administered at the close of the training period so that teachers would base their responses on their participation in the complete program and on their experiences after a full semester of applying the instructional strategies in their classes. The majority of the teachers completed the survey within a 15-minute period.

Instructional Supervision and Evaluation Procedures

The relationship between the extent of the teachers' implementation of the recommended instructional strategies and the instructional supervision and evaluation procedures at their schools was also investigated. Therefore, data were collected that provided a set of descriptive features of the schools' instructional supervision and evaluation practices.

Data sources included the participating school districts' official statements regarding instructional supervision and evaluation procedures, documents utilized in the supervisory process (i.e., observation instruments), and the teachers' descriptions of the school's instructional

supervision and evaluation practices.

The teachers' descriptions were collected through a questionnaire (see Appendix C) that asked teachers to describe the school's evaluation procedures and to formulate judgments concerning various aspects of the supervisory process. The descriptive information collected from the survey responses included the teachers' descriptions of their supervisors' responsibilities (i.e., department head, principal, assistant principal), the frequency of evaluations, the areas that were evaluated, and the procedures used (i.e., preobservation and/or postobservation conferences, prior notice of classroom observation, review of lesson plans, classroom observation).

The teachers' responses to the items related to evaluation procedures provided an essentially objective account of the established conditions of their school's evaluation systems. In contrast, the remaining survey items required the respondents to assess various characteristics of the supervisory process. The responses to these items reflected the teachers' perspectives on the evaluation process. Among the questions contained in this section were the following:

- How much influence do teachers in your district have over the process of the evaluation of their instructional performance?
- To what extent does the evaluation process recognize the teaching responsibilities and concerns of each teacher?
- How much assistance in improving the quality of instruction is provided to teachers through the evaluation process?
- To what extent do the outcomes of the evaluation process rely on objective data, rather than subjective judgments?

The teachers responsed by using a 5-point scale (1 = little or none; 5 = significant amount). In addition, they rated the overall quality of the feedback they received from the instructional supervision process. Their responses to this item were also given on a 5-point rating scale (1 = general, vague; 5 = specific, clear).

Lastly, the teachers were asked whether or not the instructional supervision process provided direction and support for individual teachers to improve areas of weakness in their teaching performance, as well as to strengthen the quality of their performance.

The survey was sent to each teacher prior to the third follow-up session of the staff development program. More than two-thirds of the teachers returned the surveys in the self-addressed envelopes that had been provided, while the others returned the surveys during the third follow-up session.

Teacher Workload

The third factor we investigated was related to the teachers' workload. The extent of the teachers' workload was determined by the teachers' responses to the Teacher Workload survey (Appendix D). This survey requested information about the following factors: the number of classes taught each day, the amount of time allocated for each class, the number of different course preparations, the number of students per class, the grade levels of classes, the ability levels of their classes, the amount of time available during the school day for planning and course preparation, the amount of time assigned to noninstructional responsibilities (i.e., hall duties, cafeteria duty, bus duty), their duties related to extracurricular activities (i.e., coaching, club sponsorship), and the provision of released time or compensation for time spent beyond the required school-day hours to complete work on curriculum development and instructional improvement projects.

In addition to asking for the teachers' objective account of these workload characteristics, the survey also asked them to rate the overall demands of their workload by describing it as "light," "manageable," or

"heavy."

The Teacher Workload survey was sent to the teachers prior to the third follow-up sessions, along with the survey on instructional supervision and teacher evaluation policies. Teachers completed and returned the Teacher Workload surveys in a pattern similar to the other surveys. Thus, the three surveys--instructional support, teacher evaluation, and workload--were completed and returned by all of the participants in the staff development program by the end of the third follow-up session. Chapter 4 reports the teachers' responses to these surveys, the data analysis procedures used, and other findings from the study.

Chapter Four

Data Analysis

This chapter presents the results of the data analysis. After the data collection process was completed, the collected data were used to determine the answers to the two research questions related to 1) the extent to which teachers implemented the research-based instructional strategies presented in the training program and 2) the relationships between implementation and selected school factors. The analysis of data related to these research questions is reported below.

Question #1: Did the teachers who participated in the staff development program apply the recommended teaching behaviors to a greater extent than those who did not participate in the training program?

An analysis of the extent to which the teachers incorporated into their lessons the research-based instructional strategies presented in the staff development program involved an assessment of data collected in observations of treatment-group teachers and control-group teachers. The observational data were used to determine the amount of class time that the teachers allocated to the following instructional functions: reviewing and correcting homework, presenting new concepts and skills, providing opportunities for students to practice new skills and concepts, conducting formative assessments of students' progress, helping students complete corrective and enrichment learning activities, directing students to complete practice exercises independently, and administering quizzes. In addition, data were collected to determine the amount of class time spent in transition between instructional activities, class time spent in nonacademic interaction, and the number of students engaged in off-task behaviors.

To determine the answer to the first research question, an average distribution of time allocated to these instructional functions was

calculated for each teacher over the five pretraining and ten posttraining observations, adjusted for differences in the number of minutes of classroom observation. These averaged percentages became the frequencies on which statistical analyses were based. Table 4-1 reports the average distribution per teacher in both the treatment and control groups.

Table 4-1
Average Percentage of Class Time Allocated to Six Instructional Functions

Instructional Function	Treatment Group Pre	Treatment Group Post	Control Group Pre	Control Group Post
Feedback-Corrective/ Enrichment Loop	.1%	21.0%	.7%	.3%
Transition/Nonacademic Interaction	12.0	8.5	13.4	11.3
Review/Correcting Homework	42.9	28.1	31.3	35.8
Quiz	6.4	7.8	5.9	10.3
Development/Guided Practice	27.9	29.1	27.0	21.9
Independent Practice	10.7	5.5	21.7	20.4
Total (Sum of Frequencies)	100 % (2,100)	100 % (2,100)	100 % (1,900)	100 % (1,900)

The above percentages reveal that the chief instructional behaviors of mastery learning, specifically in the feedback-corrective/enrichment loop, were extremely rare among both control-group and treatment-group teachers prior to training. Following the training program, however, the trained teachers allocated an average of about 21 percent of class time to this instructional component. Since the training effect was so great, the calculation of a statistical test was needless. Furthermore, it should be noted that the percentages are an average, and this disguises the fact that a large majority of the teachers implemented the instructional principles

presented in the training program. Of the 21 teachers who received the training, all but 3 allocated at least 10 percent of their class time to the feedback-corrective loop following the training program. Table 4-2 presents a frequency distribution of the percentage of time allocated to the feedback-corrective function by the 21 treatment-group teachers.

Table 4-2
Percentage of Instructional Time Allocated to Feedback and Correction Learning Activities in Posttraining Observations of Treatment-Group Teachers

Percentage of Instructional Time	Number of Teachers
30-39 %	4
20-29 %	8
10-19 %	6
0- 9 %	3
	21

Since these findings indicate that the teachers in the treatment group devoted a considerable amount of class time to the feedback-corrective/enrichment function after participating in the training program, whereas they had devoted virtually no time to it prior to training, it was of interest to determine how they had distributed class time across the other instructional functions to accommodate this change. The data in Table 4-1 shows that declines were greater in some of the functions than in others. Table 4-3 provides a more direct display. Percentages were recalculated from the frequencies for each of the instructional functions, excluding the feedback-corrective/enrichment loop. A significant Chi-square computed for the 2 x 5 contingency table (64.788, 4 df) led to rejection of the hypothesis that the pretraining and posttraining distributions were alike.

Table 4-3
Treatment-Group Teachers' Change in Percentage of Time Allocated to Five Instructional Functions

Instructional Function	Pre	Post	Change
Transition/Nonacademic Interaction	12.0%	10.7%	-1.3%
Review/Correcting Homework	43.0	35.6	-7.4
Quiz	6.4	9.8	3.4
Development/Guided Practice	27.9	36.8	8.9
Independent Practice	10.7	7.1	-3.6
Total (Sum of Frequencies)	100 % (2,098)	100 % (1,659)	

The differences between the distributions of class time across the various instructional functions indicate that following the training program the teachers allocated significantly more time to presenting and developing lessons and to administering quizzes, whereas they spent considerably less time reviewing and correcting homework and allowing students independent practice. They also spent less time engaged in nonacademic interactions and transitions between instructional events, although this difference was not as great as the others.

Finally, the data collected in classroom observations provided the opportunity to compare rates of off-task behavior among students of the trained and untrained teachers. Table 4-4 shows the average incidence of off-task behavior in the 21 treatment and 19 control classrooms (corrected for differences in numbers of students) in the pretraining and posttraining observations. While the means of the two groups were quite similar in the pretraining observations, they differed substantially after the treatment group received training. The rate of off-task behaviors declined markedly in

the treatment classrooms, whereas it declined only slightly in the control classrooms.

Table 4-4
Mean Number of Students Engaged in Off-Task Behavior per Class in Treatment and Control Classrooms

Group		Pretraining Mean	Pretraining S.D.	Posttraining Mean	Posttraining S.D.	Adjusted Posttraining
Treatment Classes	(N=21)	13.4	6.53	6.0	3.91	6.67
Control Classes	(N=19)	16.8	12.72	14.2	8.30	13.42

Since the incidence of off-task behaviors was found to be rather strongly correlated in the 40 classrooms between pretreatment and posttreatment observations ($r = .56$), an analysis of covariance was performed on the data, using the pretraining observation incidence as the covariate. The post means adjusted for the pre means are also shown in Table 4-4. The difference between the groups on the adjusted means was significant beyond the .001 level by the F test ($F = 20.775$, 2/37 df).

Correlations between the pretraining and posttraining incidence of off-task behaviors for the two groups separately, however, showed a coefficient of .69 for the control classrooms and only .14 for the treatment classrooms. A test for homogeneity of the regression lines slopes yielded an F ratio of 3.280, nearly significant at the .05 level ($p < .078$, 1/36 df). This raises the possibility that the training and/or alteration in the instructional design had more complex effects than merely enhancing the general level of student attention and interest. Examination of the scattergram for the treatment group indicated that the greatest declines in off-task behavior occurred in the classrooms of those teachers who initially experienced the highest incidence of student off-task behaviors.

To summarize, the findings of the study pertaining to the first research question clearly indicate that the teachers who participated in the staff development program made much greater use of the chief instructional strategies that had been presented, specifically, the feedback and corrective instructional functions. Furthermore, the results suggest that both the teachers and students utilized the available time for instruction more purposefully, since the amount of time spent in transition between instructional events and in nonacademic interaction decreased by one-third, and the incidence of student off-task behaviors diminished by more than half.

Question #2: Did a relationship exist between the extent to which the teachers who participated in the staff development program implemented the recommended instructional strategies and (a) the amount and sources of support the teachers reported that they received in their efforts to improve instruction, (b) the instructional supervision and evaluation practices employed by their schools, and (c) the workload of the teachers?

To determine the answers to the three parts of the second research question, we analyzed the survey responses of the 21 teachers who participated in the program. The surveys, described in Chapter 3, concerned the teachers' assigned workloads, their estimates of the amount and usefulness of support they were offered, and their perceptions of the teacher evaluation processes at their schools. The dependent variable in each of these analyses was the extent of implementation of the instructional strategies presented in the program. As discussed earlier, the proportion of instructional time the teachers allocated to feedback and corrective instructional strategies was considered to be the chief measure of implementation. Since the observational data indicated that the teachers allocated virtually no time to feedback and corrective strategies prior to the program, it was not necessary to adjust the posttraining scores by the pretraining scores. Hence, the mean percentage of instructional time the 21

treatment-group teachers allocated to feedback and corrective strategies following their completion of the staff development program was used as the measure of program implementation.

Instructional Support

The teachers' responses to the instructional support survey were used to determine whether a relationship existed between the extent to which the teachers implemented the instructional strategies presented in the program and the amount and usefulness of the support they received. As described in Chapter 3, the survey requested teachers to identify the sources of various types of support, as well as to evaluate the usefulness of the support. The types of support listed in the survey included the following: training in using the research-based strategies, information on the goals and focus of the instructional strategies, information about implementing the strategies, opportunities to observe the instructional practices, opportunities to collaborate and to engage in problem-solving sessions with colleagues, availability of instructional materials, information about the impact of efforts to apply the instructional strategies, help in securing resources (released time, teacher aides, equipment), and moral support for efforts to implement the strategies.

The teachers were also requested to identify the sources of these types of support. The sources listed in the survey included the training director, fellow teachers, the department head, the assistant principals, the principal, the assistant superintendent, and the superintendent. Finally, the teachers evaluated the usefulness of the support they were offered by completing a 3-point rating scale (1 = assistance was not useful, 2 = assistance was useful, 3 = assistance was very useful).

The total amount of support provided to each teacher was determined

by calculating a weighted frequency score. The score was derived by first multiplying the frequency by the usefulness rating the teachers assigned to each source of support and then summing these products.

The data analysis indicates that there was a positive relationship ($r = .39$) between the total amount of support the teachers reported receiving and the extent to which they applied the instructional strategies presented in the training program.

Since this was the case, it was of interest to examine the sources and usefulness of the support teachers received in their efforts to apply the recommended instructional strategies. Table 4-5 provides a summary of the data collected pertaining to these factors.

While the teachers' ratings of the usefulness of each type of support varied only slightly, the differences in the number of sources for each type of support is of some interest. It appears that the types of assistance dealing with the actual training--applications of the instructional strategies, information on program goals, and instructional materials--were provided to the teachers by fewer sources, primarily by the trainer and the teachers' colleagues, than the types of assistance of a more general nature, such as moral support, help in securing resources, and opportunities for collaborative problem-solving sessions. Also, the teachers reported that they considered the clarity of the goals and focus of the program and the opportunity to collaborate with their colleagues to have been somewhat more useful than the actual training itself. In addition, it should be noted that the teachers reported that the moral support they had received came from more sources than the other types of support they received. Moreover, they rated the value of the moral support they received only slightly below that of the training program.

Table 4-5
Teachers' Mean Usefulness Ratings of Nine Types of Support

Type of Support	Mean Usefulness[a]	Sources Per Teacher
Training in Using the Research-Based Strategies	2.44	2.05
Information Concerning the Goals and Focus of the Instructional Strategies	2.60	2.24
Information about Applying the Strategies	2.41	2.43
Opportunities to Observe Demonstrations of the Instructional Practices	2.34	2.24
Opportunities to Collaborate and to Engage in Problem-Solving Sessions with Colleagues	2.56	3.38
Availability of Instructional Materials	2.43	2.33
Information about the Impact of Efforts to Apply the Instructional Strategies	2.27	2.14
Help in Securing Resources (Released Time, Teacher Aides, Equipment)	2.35	3.90
Moral Support for Efforts to Implement the Instructional Strategies	2.43	4.38

[a]Usefulness values range from 1 (not useful) to 3 (very useful).

Table 4-6 presents a further analysis of data related to the sources and usefulness of support teachers received. The data indicate that the majority of the teachers reported that the training director and their colleagues who participated in the program provided not only the greatest amount of support but also the most useful assistance across each of the specified types of support. The next levels of the amount and usefulness of support appears to have been provided by department heads, assistant principals, and principals, in descending order. The teachers reported only

Table 4-6
Teachers' Mean Usefulness Ratings of Support from Seven Sources

Sources of Support	Mean Percentage of Teachers Receiving Support	Mean Usefulness of Support[a]
Training Director	91%	2.74
Fellow Teachers	76	2.58
Department Head	44	2.46
Assistant Principal	40	2.12
Principal	39	2.00
Assistant Superintendent	15	2.12
Superintendent	8	1.43

[a]Usefulness values range from 1 (not useful) to 3 (very useful).

limited support from their superintendents. However, the teachers from one district reported receiving assistance from the assistant superintendent for curriculum and instruction, and they considered his support to have been useful.

Lastly, the survey pertaining to instructional support asked the teachers to assess the advantages and disadvantages of applying the instructional strategies. This provided the opportunity to determine whether or not the teachers' attitudes about the merits of the instructional strategies may have affected the extent to which they implemented them. Table 4-7 provides a summary of these data. None of the 21 teachers believed the disadvantages outweighed the advantages, and only four felt they were about equal. The table of means suggests a rather close association between the teachers' views of advantageousness of the program and the extent of implementation: A one-way analysis of variance applied to the means yielded an F of 3.121 ($p = .069$).

Table 4-7
Mean Implementation Scores of Teachers by Their
Ratings of Merits of the Applications of the Strategies

Teachers' Perception of Merit of Strategies	Number of Teachers Responding	Mean Implementation[a]	S.D.
The advantages and the disadvantages were about equal	4	10.50%	8.10%
The advantages somewhat outweighed the disadvantages	4	21.25	12.79
The advantages outweighed the disadvantages	13	24.15	8.93
The disadvantages somewhat outweighed the advantages	0	--	--
The disadvantages outweighed the advantages	0	--	--
	21	21.00	9.56

$F = 3.121$, 2/18 df, $p = .069$

[a]Mean percentage of instructional time allocated to feedback and corrective instructional strategies

Teacher Evaluation and Instructional Supervision Policies

To determine whether or not the teacher evaluation and instructional supervision policies and procedures of the participating schools and districts were related to teachers' implementation of the instructional strategies, we analyzed two kinds of information. First, we reviewed the districts' policy statements concerning teacher evaluation procedures to determine the similarities and differences among the policies. Second, the teachers' perceptions concerning the application of the evaluation procedures were analyzed. The review of the districts' teacher evaluation policies revealed several similarities, as well as a number of differences. Some of the similarities and differences are described below.

1. Statement of Philosophy and Purpose of Evaluation Procedures

Although each district's statement of purpose for teacher evaluation was phrased somewhat differently, the intent of each evaluation system was similar. Essentially the goal of each system was to provide a means for improving instructional performance. In addition, each set of statements concerning the philosophy of the evaluation process stressed the importance of engaging both supervisors and teachers in a cooperative effort that leads to the meaningful improvement of instruction. Each district's complete statement of purpose is given in Figure 4-A.

Figure 4-A
Districts' Statements of Purpose for Teacher Evaluation Procedures

District 1

"It is our intent that the purpose of any teacher evaluation is to increase the competence and growth of the teacher in order that the teacher improve classroom instruction for the students. Evaluation is a cooperative venture between two professional people and should be used as a diagnostic tool to indicate where improvement is needed. Learning takes place and behavior is changed most rapidly and satisfactorily when people are engaged in activities designed to attain their own purposes--not purposes set up for them by others."

District 2

"The essential purpose of evaluation is the improvement of performance. Thus:

- the major focus is on improving rather than fault-finding
- the information produced is meaningful to the teacher for improvement of instruction
- the evaluators must take the necessary time to collect information that is adequate and to discuss it with the teacher."

District 3

"Purpose of Evaluation: To evaluate the performance of the staff member in order to improve job effectiveness.

"Philosophy: A program of evaluation aids each teacher in a continuous self-appraisal of his/her performance and provides meaningful goals for self-improvement. Simultaneously, it helps maintain, improve, and enhance the quality of instructional and supportive services. Such a program also stimulates a cooperative effort to provide the best possible education which adheres to and complements the philosophy of the District."

2. Policy Formulation

Each district provided, upon request, background information on the formulation of its teacher evaluation policies. In each case a committee of administrators and teachers was responsible for designing the evaluation system and for monitoring its effectiveness. One of the districts reported that it had also worked with a consultant from a local university during revision of its evaluation system. However, it should be noted that this revision was completed more than 10 years ago.

Each district's evaluation policy statement mentioned that the policy reflected a contractual agreement between the teachers' association and the school board. Thus, any deviations from established evaluation procedures could become grounds for teachers to file a grievance.

3. Criteria for Evaluation of Teaching Performance

The statements about criteria each district used to evaluate the teachers varied with respect to the overall scope of the district's expectations. However, each district's policy included criteria directly related to instructional responsibilities, as well as general indicators of the professionalism of the instructional staff. Each district's criteria for teacher evaluation are listed in Figure 4-B. Although each set of criteria refers to factors that deal with instructional performance, none of the policies outlines indicators of successful fulfillment of the stated

expectations for performance.

Figure 4-B
Criteria for Evaluating Teaching Performance

District 1

The following criteria are recommended for use in evaluating the teacher's performance and analysis of that performance in the follow-up conference.

I. Criteria for Teacher Evaluation--Classroom Performance

A. Planning the Lesson
1. Clearly defined objectives
2. Appropriate choice of content and skills for the age and ability groups
3. Use of appropriate resource material
4. Imaginative and creative use not only of required texts but also of supplementary material
5. Attention given to appropriate teaching methods

B. Conducting the Lesson
1. Effective management of routine classroom procedures such as attendance taking, distributing, and collecting materials, etc.
2. Clear communication of the objectives of the lesson to students
3. Clarity of explanation and directions; evidence of subject matter competency
4. Effective use of questions
5. Variety of methods
6. Balance of teacher and learner participation
7. Positive climate because of teacher sensitivity to interpersonal relations
8. Meaningful assignments

C. Follow-up Activities Designed to Evaluate Content and Skills Taught
1. Appropriate testing procedures
2. Positive use of test results to assist student learning

II. Criteria for Teacher Evaluation--Classroom-Related

A. Personal Characteristics
1. Initiative, vitality
2. Poise, stability, confidence
3. Self-awareness, striving for self-improvement
4. Effective communication
5. Responsibility

III. Additional Criteria for Teacher Evaluation

> The criteria in this category are intended to be of a positive nature and will be included in the evaluation only with the mutual agreement of both parties.

A. Interaction with Colleagues
   1. Cooperation
   2. Open-minded, flexible attitude
   3. Participation in professional activities and organizations
   4. Tolerance for opposing points of view in and out of the classroom
   5. Receptivity to evaluation, criticism, and suggestions
   6. Responsibility
   7. Participation in inservice
   8. Initiation of constructive ideas and criticisms
   9. Effort to avoid criticism of other teachers or undermining of their influence
   10. Effective contribution to the tasks and concerns of the department and the school as a whole through individual, committee, or organizational work

B. Interaction with Parents
   1. Effective parent conferences, when warranted, through adequate preparation, presentation, and summary activities
   2. Show of respect for mutual parent and teacher roles in the child's total development
   3. Effort to familiarize parents with their child's present progress and goals

C. Interaction with the Community
   1. Awareness of community activities and organizations
   2. Effort to reflect a positive image in regard to one's school and profession within the community.

District 2

Desired Teacher Performance Criteria

1. The teacher is committed--he recognizes that his primary goal is to assist in the growth of students.

   a. is readily available to students
   b. keeps abreast of trends in instruction
   c. recognizes that his regular attendance is necessary
   d. adapts methods and material to individual needs
   e. strives continually to improve instructional techniques
   f. practices hygiene and has mannerisms which do not interfere with the performance of his responsibilities
   g. supervises student when and where necessary and appropriate
   h. seeks and accepts guidance from peers and specialized and supervisory personnel

2. The teacher likes people and has a positive, enthusiastic approach to the children he teaches.

   a. generates mutual respect through a relaxed class atmosphere
   b. has generally positive parental responses
   c. approaches his work enthusiastically
   d. possesses a sense of humor
   e. encourages active participation and recognizes the instructional value of his own silence

3. The teacher is sensitive to the individual needs of children and tries to have empathy with them. The teacher respects the integrity of children even when their goals differ from his.

   a. uses pretesting in determining needs
   b. analyzes tests with students
   c. accepts varying levels of achievement
   d. accepts student disagreement
   e. makes objectives and evaluation techniques understood
   f. stresses positive reinforcement
   g. respects the confidentiality of student records

4. The teacher keeps the course objectives in sight; he is persistent in working toward these goals while retaining perspective of the total educational program.

   a. has written objectives
   b. can relate individual lessons to objectives
   c. develops and follows instructional plans
   d. is flexible to needs and interests of students
   e. facilitates instructional student activities
   f. exhibits broad educational perspectives

5. The teacher helps students synthesize individual learnings with the total learning experience in and out of school.

   a. uses illustrations from contemporary life

b. relates current lessons to previous learning
c. refers and relates his lessons to other disciplines
d. involves students in planning objectives and activities

6. The teacher has a strong sense of direction but recognizes the value of propriety.

   a. proposes and initiates courses of action intended to benefit students, faculty, or school community
   b. compromises with staff and students
   c. has an objective approach to problem solving
   d. assumes responsibility in team or committee work

7. The teacher recognizes the value of positive school-community relations.

   a. responds promptly to parental concerns
   b. informs parents of exceptional accomplishments and deficiencies promptly
   c. uses discretion in discussing school affairs
   d. implements the adopted curriculum reflecting the needs and aspirations of the community

District 3

The following criteria should be used as a basis for evaluation:

The competent educator:

1. Uses a variety of methods and techniques to reach goals of the educational program.
2. Selects and organizes materials that meet the objectives of the educational program.
3. Evaluates student achievements, revising instructional activities when necessary to meet student needs.
4. Helps students relate school work to their own experience.
5. Creates and maintains an atmosphere conducive to student achievement.
6. Cooperates with colleagues in planning and implementing the educational program.
7. Demonstrates tolerance and respect for the ability and worth of every student.
8. Follows a plan, formal or informal, for professional growth.
9. Communicates with parents and students in order to promote student progress.
10. Is ethical in dealing with students, colleagues, and members of the community.
11. Complies with policies, regulations, and directives of the school district.

4. Procedures for the Evaluation of Instructional Performance

The procedures the districts used to evaluate teachers were remarkably similar. Each district relied primarily on information collected in classroom observations, the focus of the evaluation process. In each district the supervisor and teacher met prior to the observation to discuss the teacher's instructional goals in the class to be observed. A postobservation conference was then held to discuss whether or not the goals were attained, to determine both the strengths and weaknesses of the teacher's performance, and to make recommendations for improving instruction. Also, during the postobservation conference the formal statement of evaluation was prepared; and a copy of the statement, signed by both the supervisor and teacher, was then placed in the teacher's personnel file.

Although the districts' sets of procedures outlined the major events of the evaluation process (i.e., pre- and postobservation conferences), none of the procedures provided any indication of the elements of effective goal setting, the nature of the data collection process to be conducted during the classroom observation, or the analysis of observation data discussed at the postobservation conference.

5. Supervisory Responsibilities for Evaluation

The department chairpersons in each district were assigned the primary responsibility for evaluating teachers. In Districts 1 and 2, building administrators (either the principal or assistant principal) were also responsible for teacher evaluation. However, in District 3, building administrators were not involved in any phase of the evaluation process. Moreover, in Districts 2 and 3, teachers completed self-evaluations. In District 2, all nontenured staff completed self-evaluations three times each year; however, tenured staff were not required to evaluate themselves. In

contrast, District 3 required all teachers to complete self-evaluations once a year, but evaluation statements were not included in the teachers' personnel files. District 2 provided teachers with the additional option of having peer evaluation. It should be noted, however, that peer evaluations did not replace evaluations by department chairpersons or building administrators.

6. Frequency of Evaluations

A comparison of the frequency of the evaluations conducted in each district shows that District 2 had the most intense evaluation system. All nontenured teachers were evaluated at least three times each year by their department chairperson and at least three times by a building administrator. Tenured teachers were evaluated every three years. During a tenured teacher's evaluation year, the department chairperson evaluated the teacher's performance three times, in addition to at least three evaluations completed by a building administrator. Figure 4-C displays the assigned supervisory responsibilities for and the frequency of evaluations within each district.

Figure 4-C
Teacher Evaluation Procedures: Supervisory Responsibility and Frequency of Evaluation

	Supervisor Responsible	Frequency of Evaluation	
		Nontenured	Tenured
District 1	Department Chairperson	2 times/yr	1 time/yr
	Building Administrator (Principal or Assistant Principal)	1 time/yr	1 time/3 yrs
District 2	Department Chairperson	at least 3 times/yr	3 times/3 yrs
	Building Administrator	at least 3 times/yr	3 times/3 yrs
	Peer Teacher	optional	optional
	Self-Evaluation	3 times/yr	optional
District 3	Department Chairperson	1st yr teacher: 2 times/yr 2nd yr teacher: 1 time/yr	1 time/3 yrs
	Self-Evaluation	1 time/yr*	1 time/yr

*required, but not included in personnel files

It is of some interest to note that the participating teachers from District 2, which had the most frequent evaluations, implemented the strategies least frequently. However, there were only three participating teachers in District 2. Table 4-8 summarizes the mean implementation scores for teachers in each district.

Table 4-8
Mean Implementation Scores of Teachers by District

	Number of Teachers	Mean Implementation[a]	S.D.
District 1	9	25.56%	6.11
District 2	3	6.33	7.09
District 3	9	21.22	11.09

[a]Mean percentage of instructional time allocated to feedback and corrective instructional strategies

Teachers' Perspectives on Teacher Evaluation Procedures

We used the participating teachers' responses to the survey concerning the teacher evaluation procedures at their schools to assess their perspectives on these procedures across a number of dimensions of the evaluation process. These dimensions included the amount of influence teachers felt they had over the evaluation process, the extent to which the evaluation process recognized the differences in responsibilities of individual teaching assignments, the extent to which the outcomes of the evaluation process relied on objective data rather than on subjective judgments, the clarity and specificity of the feedback provided in the evaluation process, and the extent to which the evaluation process focused on improving areas of weakness and strengthening the quality of teachers' instructional performance.

The teachers assigned a rating to each dimension noted above. Their ratings were then categorized as being either low or high, according to the level of rating they had assigned to each factor. A "conditions of teacher evaluation practice" score was then calculated for each teacher by obtaining the sum of the scores assigned to each dimension. The highest sum of these

scores was considered to be indicative of the best of "conditions." In other words, those teachers who assigned higher ratings to each of these dimensions of the evaluation procedures were viewed as those who held more favorable perspectives on the evaluation process as compared to those who assigned lower ratings. A Pearson correlation coefficient was used to test whether there was a relationship between the teachers' "conditions of evaluation practice" scores and their implementation scores (the mean percentage of instructional time they allocated to feedback and corrective instructional strategies).

These data indicate that there was a negative relationship ($r = -0.34$, $p = .13$) between the teachers' perspectives concerning the favorability of the conditions of the teacher evaluation process and the extent to which they implemented the instructional strategies presented in the training program. Thus, the findings suggest that those teachers who held the more critical perspectives on the evaluation process were those who implemented the strategies to the greatest extent.

In addition to providing a method for assessing the teachers' perspectives on the dimensions of the evaluation process, the survey data also provided the teachers' ratings of the overall level of assistance the evaluation process provided in improving instruction. Pearson correlation coefficients were calculated in order to investigate the relationship between the ratings teachers assigned to this survey item and 1) their "conditions of evaluation practice" scores and 2) their implementation scores. A strong positive relationship was found between the teachers' ratings of the extent of the assistance the evaluation process provided to improve instruction and their perspectives on various conditions of the process ($r = .65$, $p = .001$). However, a negative relationship was found when the teacher implementation score was considered as the criterion variable ($r = -.41$, $p = .06$).

Teachers' Workload

The third variable we considered in relation to the extent of strategy implementation was the teachers' workload. Several dimensions of the teachers' workloads were assessed by analyzing responses to the Teacher Workload survey (see Appendix D).

Among the factors related to the teachers' workloads that were relatively constant across the sample were the number of classes the teachers were assigned, the amount of time engaged in instruction, the amount of time teachers were responsible for supervisory assignments such as monitoring study halls or cafeteria duty, and the amount of time allotted for conferences and planning activities.

The conditions of the teachers' workloads that varied considerably across the sample were the number of course preparations, the range of students' ability levels, and the number of students assigned to their classes. The number of course preparations the teachers reported ranged from two to four. Similarly, the number of student ability levels within the teachers' classes ranged from one ability level per class to three different ability levels. Finally, while some teachers instructed as few as 90 students, others taught as many as 149 students.

In the analysis of the teachers' workloads, we considered the conditions discussed above (the number of course preparations, the range of student ability levels, and the number of students assigned to their classes) to be contributing factors to the instructional demands the teachers faced each day. Each of the conditions classified as "low," "medium," or "high," depending upon the magnitude of each factor. Each teacher's "instructional demands" score was then derived by adding the scores the teacher assigned to each condition. In other words, the "instructional demands" of those

teachers who were responsible for only two different course preparations for students of the same ability level and who instructed the least number of students were considered to be low, as compared to the instructional demands of teachers who taught a greater number of different courses with more students of varying ability levels.

We also collected data on the number of hours per week the teachers were responsible for directing extracurricular activities. The number of hours that the teachers engaged in these activities ranged from none to 25. A numerical "low," "medium," or "heavy" rating was assigned on the basis of the number of hours the teachers were responsible for extracurricular activities. This factor was then added to the teachers' instructional demands score to derive an overall workload score. Following the determination of each teacher's workload score, we calculated a Pearson correlation coefficient to test the relationship between the teachers' workload scores and their implementation scores. The analysis revealed a statistically insignificant relationship ($r = -.11$) between the teachers' workloads and the extent to which they applied the strategies.

An additional item of the Teacher Workload survey asked teachers to indicate whether their districts compensated them for time spent outside of their teaching or extracurricular responsibilities to work together on instructional improvement projects. Although more than two-thirds of the teachers reported that they were provided with compensated time to engage in such activities, the data analysis indicated that compensated teachers did not implement the instructional strategies to any greater extent than did the uncompensated teachers. These data are presented in Table 4-9.

Table 4-9
Mean Implementation Scores of Teachers Compensated and Not Compensated for Instructional Improvement Projects

	No. of Teachers	Mean Implementation[a]	S.D.
Compensation Provided	15	22.5%	10.77%
No Compensation Provided	6	17.3	9.79

[a]Mean percentage of instructional time allocated to feedback and corrective instructional strategies

The final survey item asked teachers to rate the overall demands of their workload as light, manageable, or heavy. None of the teachers reported that they had been assigned "light" workloads. The analysis of the data revealed that those teachers who considered their workload to be the heaviest had the highest implementation scores for the instructional strategies. A summary of these data is presented in Table 4-10.

Table 4-10
Mean Implementation Scores by Teachers' Perception of Overall Workload

Teachers' Perception of Overall Workload	No. of Teachers	Mean Implementation[a]	S.D.
"Manageable"	16	19.5%	10.07%
"Heavy"	5	29.0	8.31
"Light"	0	---	---
t = 2.108 p = .049			

[a]mean percentage of instructional time allocated to feedback and corrective instructional strategies

Summary

In summary, the results indicate that a different answer was obtained for each component of the second research question. The question focused on the determination of a relationship between the extent to which the teachers implemented the instructional strategies presented in the staff development program and three conditions within their schools. The first condition was the amount of support the teachers were provided to apply the instructional strategies. A positive relationship ($r = .39$) was found between the amount of support they reported receiving and the extent to which they implemented the strategies. In contrast, there was a negative relationship ($r = -.34$) between the teachers' perceptions of the instructional evaluation procedures employed by their schools and their implementation of the strategies. Finally, no relationship was detected between the workload assigned to the teachers and the extent of their implementation.

Chapter Five

Discussion

This chapter is organized into three sections. The first two sections discuss the findings related to the study's two major research questions. The first of these two sections analyzes the effectiveness and the significance of the staff development model developed and tested in the project. The second section investigates the meaning of the findings pertaining to the instructional leadership support functions and policy issues related to teacher evaluation and workload. The implications of these findings for the design and delivery of staff development programs and the organizational conditions that support instructional improvement in secondary schools are also discussed in the first two sections. The third section outlines recommendations for further research on the process of improving instruction in secondary schools.

Staff Development Program Effectiveness

One of the primary objectives of this study was to determine the effectiveness of the staff development model developed for this project. The model's design, described in Chapter 3, incorporated findings from research on instructional design and on staff development. Training in the application of research-based instructional strategies related to the principles of mastery learning and classroom management comprised the content of the program, and the program's training activities were drawn from research on effective staff development practices. The effectiveness of the program was determined by comparing the instructional behaviors of those teachers who participated in the program and received training with the

teaching performance of teachers who did not receive the training.

The results pertaining to the extent to which the trained teachers implemented the instructional strategies yielded two sets of implications that have significance for the design of subsequent staff development programs. The first set of implications relates to the program's content, specifically, to the notion of combining research-based classroom management strategies and the principles of mastery learning in the staff development program. The second set of implications pertains to the contribution of the research on effective staff development practices to the design of professional development programs for secondary school teachers.

Program Content

Although the research on teacher effectiveness has consistently underscored the importance of the instructional principles of mastery learning, particularly the use of the feedback-corrective/enrichment loop, it has not identified the most practical ways to provide sufficient time for teachers to engage in corrective and enrichment activities, in addition to their other instructional activities, within a fixed amount of class time. Moreover, some researchers have suggested that allocating instructional time for corrective learning activities may present the classroom teacher with an ethical dilemma. For instance, Cohen (1984) warns that the price some teachers pay when they set aside class time for remedial learning activities within a group-based instructional format is that they place limits on the more talented students' learning opportunities. Similarly, Slavin and Karweit (1984) speculate that the benefits of corrective instruction may be diminished because it takes time away from instruction to the whole class.

One of the few studies of group-based mastery learning that has directly investigated the issue of time allocation for the

feedback-corrective/enrichment loop is Arlin's (1982). He examined the implementation of mastery learning principles by 28 elementary teachers who volunteered for a pilot project in their classrooms.

Two major findings resulted from Arlin's study. The first finding concerned where the teachers obtained extra time to provide corrective learning activities for their "slower" learners. Arlin reported that teachers used an ultimately unsatisfactory method:

> The solution most teachers adopted was to make the lessons shorter than originally planned so that they could have considerable time left in the class period to include at least one remedial session and retest. Usually students who needed additional remedial sessions were seen by the teacher during recess or lunch, a practice that was not likely to be received favorably over a long period of time.

The second finding concerned allocation of instructional time for "faster" students. Again, Arlin reported another unsatisfactory solution:

> Many teachers originally planned enrichment work for the faster students, such as more advanced work on the topic under consideration. . . . [They] eventually gave up assigning enrichment activities and allowed activities such as free reading, work in other subjects, trips to the library, or quiet socializing at the back of the room. Cooperation of faster students took precedence over further depth, and particularly over further breadth. The major concern with faster students did not seem to be with enrichment but with the managerial requirement to keep them occupied.

Our study provided a test of the notion that teachers could minimize the time costs of mastery learning by maximizing their use of instructional time through the application of research-based classroom management and organizational strategies. Moreover, the design of the study enabled us to examine directly the participating teachers' use of instructional time and the learning conditions they provided for both their "slow" and "fast" learners.

As noted in Chapter 4, the results of our study clearly indicate that the participating teachers made much greater use of the

feedback-corrective/enrichment loop in their lessons than did the nonparticipating teachers. Furthermore, the findings suggest that both the teachers and students utilized the available time for instruction more purposefully, since the amount of time spent in transitions between instructional events and in nonacademic interaction decreased by one-third, and the rate of student off-task behaviors diminished by more than one-half from their pretraining levels.

The findings that pertain to the teachers' allocation of time for various instructional functions are of particular interest. For example, the time allocated to independent seatwork decreased by almost one-half, suggesting that the teachers spent more of their time during the instructional period engaging their students in substantive academic interaction rather than simply monitoring student work. Also, the instructional time teachers spent reviewing and correcting homework decreased by one-third. These results suggest that rather than spending classtime reviewing previous lessons and correcting homework exercises, the teachers were focusing on the specific concepts or skills that the students' performance on formative assessments had identified as needing improvement. Consequently, these teachers may have been able to tailor their lessons more appropriately to their students' learning needs.

In addition, the results indicate that teachers spent significantly more time presenting and developing new material and administering quizzes after they had participated in the training program. Thus, both of these functions appear to have taken on greater priority, in terms of allocated time.

The observation data also revealed that the greatest declines in off-task behaviors in the treatment classrooms occurred in the classrooms of those teachers who initially experienced the highest incidence of student

off-task behavior. One possible explanation for this outcome is that the teachers who initially had to contend with higher rates of student off-task behaviors may have considered their students' behavior to be a serious barrier to their instructional effectiveness and, consequently, may have applied the classroom management strategies presented in the training program in a more systematic fashion.

Another reason for this difference in the rate of decline in off-task behaviors may be related to the effect of the learning-for-mastery process on student learning skills. The findings in a study by Hecht (1977) indicated that students acquire and/or further develop learning-to-learn skills in mastery learning instructional programs. Those students who demonstrate the highest rates of off-task behaviors possibly can be characterized as those who approach their studies without a clear sense of purpose. Perhaps as these students become more proficient at applying learning skills and begin to take on greater responsibility for their academic performance under the mastery learning approach to instruction, they may also begin to view their off-task behaviors as an obstacle to their academic success and, consequently, place a greater value on the ways they spend instructional time.

Lastly, it is important to note that the teachers reported at the last follow-up session that they had covered the same amount of material in their classes during the first semester after the program as they had in one semester during prior years. Hence, it appears that they did not alter the scope or the pace of instruction as they implemented the learning-for-mastery techniques. In other words, they did not sacrifice content coverage in their effort to increase their students' content mastery.

The findings in our study differ in several respects from those reported by Arlin (1982). For example, he found that teachers in his study

shortened presentation and development of their lessons so that they could provide feedback to students on their learning progress and involve them in corrective learning activities. However, in our study the teachers allocated significantly more time to the initial presentation of each lesson.

Second, Arlin reported that the teachers in his study met with the students who needed additional remedial assistance during recess and lunch time. He noted that the teachers considered this to be an excessive burden on their time and speculated that they would discontinue this practice shortly after the pilot project was completed. In contrast, the findings in our study indicate that teachers provided a significant amount of time within allocated class time for the feedback-corrective loop.

Lastly, in Arlin's study the teachers' primary concern regarding their "faster" learners was simply to keep them busy rather than to provide them with instructional activities that enriched their learning. Furthermore, he reported that the teachers diminished the availability of learning opportunities for the faster learners, while they increased the amount of instruction for the slower students. Contrary to Arlin's findings, the results of our study indicate that neither the pace of instruction nor the amount of time allocated to the presentation and development of each lesson was adversely affected by the teachers' application of mastery learning principles. Since there was no difference in the amount of material covered before and after the training, it would appear that the teachers did not alter the scope of instruction to accommodate the learning-for-mastery process. Furthermore, in some cases the teachers provided their students with opportunities to pursue the learning objectives at a greater depth of understanding following the training program than they did prior to training. Hence, it seems that the approach to instruction they employed was not consistent with the "Robin Hood" philosophy teachers in Arlin's study used,

since neither the breadth nor the depth of instruction was diminished after the teachers began to apply mastery learning procedures.

The differences in the findings of our study and those of Arlin's possibly can be attributed to the fact that our staff development program provided the participants with training in the application of research-based classroom management and organizational strategies in addition to the instructional principles of mastery learning. Findings from the research on instruction have consistently indicated that without an effective classroom management system that holds students accountable for a clear set of academic and behavioral expectations and that establishes an environment conducive to learning, even the most thoughtfully and carefully designed lessons will fail to be as successful as they would have been otherwise (Evertson and Emmer 1982). Furthermore, these findings indicate that teachers' managerial decisions can have a direct impact on the proportion of time that is devoted to teaching and learning (Anderson, Evertson, and Brophy 1978; Berliner, Fisher, Filby, and Marilave 1978; Emmer and Evertson 1980, 1981; Fitzpatrick 1982; Good and Grouws 1977; Stallings 1980).

Our results suggest that instructional time within a group-based instructional setting can be positively altered to accommodate implementation of the principles of mastery learning without sacrificing the amount of content presented and without placing one group of students at a disadvantage while increasing the benefits of instruction for others. The findings seem to indicate that the staff development program used in this study, which trained teachers in the application of classroom management and organizational strategies along with the instructional principles of mastery learning, gave them an advantage in their use of instructional time. They incorporated feedback and corrective strategies within the instructional design to enhance their students' understanding of their lessons, and both

students and teachers used instructional time in a more purposeful and productive manner. In short, it appears that the teachers' efforts to increase their students' mastery of their learning were bolstered by their application of both the principles of mastery learning and research-based classroom management strategies.

To summarize, the combination of the research findings on classroom management and on the principles of mastery learning appears to offer teachers a set of effective and efficient strategies that can enable them to assist all their students in achieving higher level of mastery of their learning within the scheduling and time constraints of most secondary school classrooms.

Training Process

The second set of implications related to the effectiveness of our staff development model pertain to the training processes employed. One key factor that possibly can be attributed to the extent of the implementation of the program's instructional strategies is the design of the staff development activities provided. The program's training activities were modeled after those that staff development research has found to be effective, and their design incorporated those research-based staff development practices that offered the greatest likelihood that the teachers would implement the desired instructional strategies.

In addition to the program's teacher-training components, a seminar was held for the administrators of the schools participating in the program (see Chapter 3). The purpose of the seminar was to provide the administrators with an overview of the research-based instructional practices presented in the teacher-training program, as well as to suggest ways they could support the teachers in implementing the recommended instructional

strategies. These support strategies were drawn from the research on effective schools.

The training program was deliberately designed to provide the teachers with both direct and indirect sources of support. Direct support was offered through the program activities. In addition, the program indirectly supported their efforts to improve instruction by helping to establish between the administrators and the teachers a common language concerning effective instructional practices, and by highlighting ways to strengthen their partnership in the instructional improvement process.

The staff development program used in this study differed in several respects for the training program included in Arlin's study. In his study, the 28 teachers who volunteered to participate in the program were provided with a two-day workshop on constructing mastery units, objectives, and quizzes and were given access to literature describing the principles of mastery learning. They were then given the assignment to develop a mastery learning module for one of the study units they would present within the next six weeks. In short, the workshop and follow-up assignment constituted the entire training program. Following this brief introduction to mastery learning, 11 teachers reported that the project was too time consuming and terminated their participation. Arlin observed the classes of the remaining 17 teachers to determine the extent of their implementation of mastery learning procedures. On the basis of those observations and follow-up discussions with the teachers, he decided that only 10 of the teachers adhered sufficiently to mastery learning procedures to warrant further observation. Consequently, his research findings were based upon his subsequent study of less than half of those teachers who originally volunteered to participate.

In contrast to Arlin's brief, one-shot delivery of training, the

staff development program developed in this study did not simply provide the participants with access to research findings on effective instructional practices. Rather, teachers were provided with a considerable amount of time and support to assist them in actually applying these practices in their instruction. The initial training was presented in an intensive summer seminar. In addition, extensive support was provided in the follow-up sessions held during the following semester, peer observation and coaching, and opportunities for collegial planning sessions. Furthermore, the administrative training program was designed to give both the teachers and administrators greater understanding not only of the research-based instructional strategies found to make the greatest difference in student learning, but also of ways to strengthen their mutual efforts in the instructional improvement process.

Our results suggest that when the design of training activities includes provisions for giving teachers sufficient time and support, substantial benefits can be reaped in terms of the extent of implementation of the recommended instructional strategies. Whereas less than half the teachers in Arlin's study successfully applied the training they received, the teachers who received training in our study allocated, on average, about 20 percent of classtime to the chief principle of mastery learning (the feedback-corrective/enrichment loop) despite the fact that they had devoted virtually no time to this instructional component prior to being trained.

Furthermore, it should be noted that not only do one-shot approaches to staff development yield little with respect to the transfer of training, but they may also produce a sense of frustration for teachers. For instance, in Arlin's study the principal reason cited by those teachers who terminated their participation in the training program was that it required too much time, in light of the other instructional responsibilities that they faced

each day. These teachers did not discontinue their participation because they rejected the instructional principles that had been presented in the training. On the contrary, these principles were consistent with their beliefs about teaching and learning, and they acknowledged the value of these principles in the effort to provide quality instruction. Hence, providing these teachers with information on instructional strategies intended to increase their students' level of mastery without providing them with sufficient time and support to implement the strategies may have deepened their sense of frustration and diminished their professional self-esteem.

Research findings on teaching have identified a set of instructional strategies that can make an important difference in student learning. Yet, if these research-based ideas are to be translated effectively into action, it is also necessary to take into account the research findings on effective staff development practices. The results of our study suggest that combining and using the contributions from these two areas of research in the design of staff development programs can empower, rather than frustrate, classroom teachers in their efforts to provide high-quality instruction.

Organizational Conditions for Instructional Improvement

This section discusses the findings pertaining to the instructional leadership support functions and policy issues related to teacher evaluation and workload. In addition, the implications of these findings as they relate to the organizational conditions that support instructional improvement in secondary schools will be discussed.

Instructional Leadership Support

The first factor related to the organizational conditions of the participating schools that we examined was the instructional support teachers

received. The relationship between the extent to which the teachers implemented the instructional strategies presented in the program and the amount and usefulness of the support they received was analyzed. We requested the participating teachers to identify both the types and the sources of support they had received in their implementation efforts. The results of the analysis revealed that a positive relationship existed between the total amount of support the teachers received and the extent to which they applied the instructional strategies.

This finding has several implications related to the context of the instructional improvement process in secondary schools. First, and perhaps the most fundamental implication, is that if support is not provided, it is likely that the transfer of training presented in staff development programs will be diminished. The findings of our study indicate that when teachers receive support, the effectiveness of staff development programs is enhanced in terms of the extent to which teachers implement the training.

One possible explanation for this finding is that when school administrators give teachers visible and direct support and provide opportunities for them to support each other in applying staff development training, this conveys a message that the program is not only consistent with the school's goal but also that the teachers' efforts at program implementation are considered worthwhile and valuable. Moreover, such support forges alliances between teachers and administrators, and among the teachers themselves, that strengthen their mutual endeavor to achieve the school's goals.

In the past few years greater attention has been paid to the importance of school-based staff development programs. In some instances this has occurred as a result of local initiatives in response to recommendations of national reports on the status of secondary education,

i.e., A Nation at Risk (National Commission on Excellence in Education 1983). In other cases, state mandates have required school districts to develop and implement comprehensive staff development programs (i.e., Illinois School Reform Plan, SB 730, 1985). The findings in our study suggest that, as more school districts invest greater amounts of time and resources in staff development efforts, it would be prudent, even on a cost-benefit basis alone, for them to also consider the support system they will need to implement if they are genuinely interested in providing successful staff development programs.

Some of the potential elements of such a support system were identified by participating teachers in their listing of the types and sources of support they considered useful. Among these elements was a clear rationale and focus for the program. When program designs include time for a description of program goals and a presentation of evidence on its effectiveness before training actually begins, teachers are able to appraise the merits of the program for themselves. Of all the elements of support that were identified, teachers considered this one to be the most important. Because the design of the program used in our study included an explanation of program goals and rationale, the teachers recognized at the outset that their professional opinions were valued, and they were not simply placed in the position of being recipients of "truths" related to instructional effectiveness. Nor were they charged with the responsibility of blindly accepting a set of expectations for their instructional performance that might or might not have been consistent with their own beliefs about teaching and learning. Instead, both the dignity of their position and their expertise were respected.

A second source of support the participating teachers considered to be of great value was the opportunity to collaborate with their peers. The

chance for secondary school teachers to meet with each other in an instructional problem-solving setting is relatively rare. By fostering collaboration, the program may have served to diminish the sense of isolation that teachers in secondary schools often experience. Moreover, it may have provided a source of ongoing support that remained long after the training program was initially presented. In addition, these opportunities for teachers to share with each other their experiences in implementing the program expanded the set of strategies they could employ in applying the research-based instructional principles.

Another type of support that teachers ranked only slightly below the value of the training program itself was the moral support that their school administrators and their colleagues offered them as they implemented the strategies. This finding is consistent with findings reported in the school effectiveness literature (i.e., Purkey and Smith 1982) that underscore the importance of organizational climate and the culture of school improvement. The multiple sources of encouragement (i.e., from principals, assistant principals, department heads, and colleagues) that were provided to the teachers in their implementation efforts helped to affirm the program's value and may have established an expectation within the school that greater success could be achieved through partnerships in school improvement. Furthermore, the moral support that was offered to the teachers may have not only assisted them in implementing the program, but it may have also given them a greater sense of pride about their contributions to the instructional process.

The teachers also considered the discussion of program applications and the actual demonstrations of the instructional strategies to have been very useful. In many ways, this simply verifies the elements of good pedagogy. For instance, Rosenshine's (1983) analysis of the teacher

effectiveness literature identifies demonstrations of applications of the skills or concepts presented in the lesson as being among the principal instructional functions that contribute to student learning. Thus, the presentation of the instructional principles of classroom management and mastery learning in the staff development program, along with the thorough consideration of how those principles could be applied in the teachers' classrooms, may have not only strengthened the likelihood that the teachers would implement the principles, but also it demonstrated an application of those principles within the training program itself.

Lastly, the instructional support survey asked the teachers to compare the advantages and disadvantages of implementing the program. The data analysis indicated that those who considered the program to be more advantageous implemented the program to the greatest extent. It is significant that none of the 21 participating teachers believed the disadvantages of the program outweighed the advantages. Seventeen teachers reported that the advantages outweighed the disadvantages. The four teachers who indicated that the advantages and disadvantages were about equal reported in follow-up interviews that the disadvantages were related primarily to the lack of time to implement the program adequately and were not related to the effect of the program on their students' learning.

The analysis of the data did not reveal whether the teachers' attitudes concerning the program affected their implementation of the strategies or, on the other hand, whether their experiences in applying the strategies influenced their perspectives on the program. Nor is it clear whether the presentation of the program's goals and rationale at the outset of training contributed to the teachers' perception of its value. Nevertheless, the findings do suggest that the belief system the teacher holds concerning the instructional process can make a difference in the

relative success of staff development programs aimed at improving instruction.

Hence, it appears that a more enduring impact of staff development programs can be realized when the design of the program takes into account the participants' value system. The program design of this study included both direct and indirect efforts to influence the teachers' perspectives on the value of the program. A direct attempt was made by including a discussion of the program's aims and rationale, and indirect attempts were made by attempting to foster conditions within the school that would enable teachers to succeed in applying the strategies. These efforts to align the teachers' beliefs about teaching and learning with their perspectives on the benefits of the program may have been one of the key factors that contributed to the success of the program's implementation.

Teacher Evaluation and Instructional Supervision Policies

Our study also explored the relationship between the extent of program implementation and the teacher evaluation and instructional supervision policies of the particiating districts. The schools' instructional supervision policies and procedures were reviewed, and the teachers' perceptions of the evaluation procedures were analyzed.

Although the review of the participating districts' teacher evaluation policies revealed differences among districts in the criteria employed, procedural components, the frequency of evaluations, and the supervisory roles related to evaluations, there were nevertheless many striking similarities. For instance, all three districts required a goal-setting component, yet none of the evaluation procedures provided any indicators of what constituted worthwhile instructional goals or what elements were necessary to achieve them. Nor did these sets of procedures

offer any clues concerning the nature of the classroom observation data collection process or other assessment measures that were used to determine whether the specified goals had been met. Furthermore, although each district stated that the purpose of the evaluation process was to improve instruction, none of the districts' procedures provided any indication of how teachers would be provided with feedback on their instructional performance, nor were any guidelines or suggestions offered for strategies that could be employed to remediate instructional problems. In short, each district's set of evaluation procedures outlined a process whose inherent design offered little hope of providing an accurate characterization and/or appraisal of the teaching and learning encounters that occurred in their schools.

The most noteworthy finding from the analysis of the teachers' perceptions of the evaluation procedures was that those teachers who were the most critical of the conditions of the supervision and evaluation processes were also those who most frequently implemented the recommended instructional strategies. Perhaps one explanation for this is that these teachers' dissatisfaction with their school's supervisory process and their perception that the process did not fulfill its goal of helping teachers to improve instruction led them to search more actively for other means of strengthening their instructional performance, and this project's staff development program offered them opportunities to do so. Consequently, they may have been more open to adapting their instructional techniques by incorporating the research-based strategies presented in the program.

The findings in our study that pertain to the teacher evaluation process differ in some respects from those Natriello (1984) reported. In his study he found a positive relationship between certain conditions of the evaluation process (frequency of evaluation and amount of influence over the process) and teachers' self-reports of the amount of leverage they had over

their instructional performance. He characterized instructional leverage in terms of the strength of the relationship between the efforts teachers exerted to improve instruction and the effect of their efforts on the quality of their instruction. Hence, those teachers who reported that they had greater leverage over their teaching were also those who indicated that their efforts to strengthen their instruction were the most effective. In contrast, it should be noted, the findings of this study were derived from actual observations of the teachers' instructional performance rather than from their perceptions of the quality of their instruction. When this observational data were taken into account a negative, rather than positive, relationship was found between the conditions of the supervisory process and instructional performance. Thus, although certain conditions of the teacher evaluation process may be related to the teachers' sense of instructional efficacy, they are not related to actual instructional performance.

Teacher Workload

The third factor considered in the investigation of the organizational conditions potentially related to the extent of implementation of the instructional strategies was the teachers' workload. Although the analysis of the teachers' workload revealed some significant differences in the teachers' overall responsibilities (i.e., number of course preparations, range of students' ability levels, number of students assigned to their classes, and the amount of time they committed to directing extracurricular activities), the findings indicated that despite these differences, teachers with lighter workloads did not implement the instructional strategies to any greater extent than teachers with heavier workloads. Moreover, when asked to rate the overall demands of their workloads, those teachers who perceived their workloads to be the heaviest were also those who implemented the

strategies to the greatest extent.

These findings raise a number of questions. First, although certain aspects of the teachers' workloads were considerably different, are there perhaps other dimensions of their workload that might have been related to the extent to which they implemented the program? These dimensions might include the number of classes assigned, the amount of conference and planning time available to accommodate collegial team planning, or the amount of time assigned to supervisory responsibilities. If there had been differences in these factors, would a relationship have been detected?

Second, did the design of the staff development program have sufficient strength to overcome the conditions of the teachers' workloads that might otherwise have been a deterrent to their implementation efforts? For instance, did the support system built into the program design counteract the possible negative effect of preparing instructional plans for a greater number of courses and teaching larger classes of students with varying ability levels? If such a support system had not been provided, would it have made a difference?

Lastly, did those teachers who considered their workloads to be the heaviest hold role definitions for themselves that differed from those their colleagues held? Had they established expectations for themselves that included the commitment of greater amounts of time and energy to their work? Since those who perceived that their workloads were heaviest implemented the strategies to the greatest extent, did these teachers do so because they considered it their professional responsibility to exert a greater amount of effort in implementing the instructional strategies presented in the program?

The answers to these questions cannot be determined by analyzing the data collected in our study, which points to some of its limitations. However, these limitations raise some issues that subsequent research efforts

can address. The following section suggests some directions for future research in this area.

Recommendations for Future Research

In this project, findings from the research on isntruction and on effective staff development practices were incorporated in the design of a staff development program for secondary school teachers and administrators. An experimental test was conducted to determine the model's effectiveness in terms of the extent of program implementation. The study also investigated the relationship between certain organizational conditions and program implementation. The results of the research project provide evidence of the program's effectiveness and reveal the degree of the relationship between the effectiveness of the program and the organizational factors that were examined.

However, the results do not provide a comprehensive analysis of the staff development program. It should be noted that the findings can be generalized only to a similar sample. Additional studies need to be conducted that include instructional programs at various grade levels and other content areas. Whether or not staff development programs that combine training in classroom management and the instructional principles of mastery learning are an effective means for improving instruction in other content areas or at different grade levels has yet to be determined.

Furthermore, the design of the program was drawn from a selected set of findings from the research on instruction and the research on effective staff development practices. Additional sets of research findings need to be considered in the design of future studies. For instance, perhaps the combination of the results of Slavin's (1980, 1983a, 1983b, 1984) work on increasing student incentives and motivation for learning through cooperative

teamwork, along with the findings from the research on mastery learning and classroom management, would yield a more comprehensive set of instructional strategies that could be incorporated in the design of staff development programs.

In addition, further research is needed to examine more critically the context of the instructional improvement process. Findings from the research on effective schools consistently underscore the value of the culture of improving schools, yet the factors that have the most profound influence on the school's culture have not been determined. In this study only three factors were examined. Not only is further research required to gain a better understanding of the relationships among factors that contribute to the school's culture and instructional improvement, but other organizational conditions of schools need to be considered as well. For instance, would any differences have been detected in the strength of the relationship between the extent of implementation of the staff development program and the teachers' workloads had there been greater variance in the teachers' instructional responsibilities, such as the number of classes they taught or the amount of time they were regularly provided to meet with their colleagues in team planning sessions? Or, what if the goal-setting component of the teacher evaluation procedures were directly linked with a comprehensive professional development program, including staff development opportunities provided to teachers? Did the fact that administrators of the participating schools were involved in the program influence the amount of support they extended to the teachers in their implementation efforts? What other organizational conditions might have enhanced or hindered the effectiveness of the staff development program? The answers to these questions could not be obtained from the data collected for this study. A broader and more in-depth investigation of the organizational conditions that

contribute to the effectiveness of staff development programs needs to be considered in subsequent studies.

Finally, additional research must be conducted to explore the full range of implications of the findings from the research on effective staff development practices in relation to the organizational framework of the school and to the policies that shape key decisions affecting the improvement process. Clearly, advances in our understanding of effective instructional practices will not lead to comparable gains in student learning unless thoughtfully designed staff development programs are provided to assist teachers in applying these instructional strategies, and until the conditions of secondary schools serve to expand, rather than restrict, the capacity of the school to improve its instructional program.

References

Anderson, Linda M.; Evertson, Carolyn M.; and Brophy, Jere E. An Experimental Study of Effective Teaching in the First-Grade Reading Groups. Austin, TX: The Research and Development Center for Teacher Education, 1978.

Arlin, Marshall. "Teacher Responses to Student Time Differences in Mastery Learning." American Journal of Education (1982): 334-351.

Bauchner, Joyce, and Loucks, Susan. "Building Administrators and Their Role in the Improvement Process." Paper presented at the annual meeting of the American Education Research Association, New York, March 1982.

Bentzen, M. Changing Schools: The Magic Feather Principle. New York: D. Appleton and Co., 1974.

Berliner, D.; Fisher, C. W.; Filby, N.; and Marilave, R. Beginning Teacher Evaluation Study. San Francisco: Far West Laboratory, 1978.

Berman, P., and McLaughlin, M. Federal Programs Supporting Educational Change, Vol. VII: Implementing and Sustaining Innovations. Santa Monica, CA: The Rand Corporation, 1978.

Block, James H. Schools, Society, and Mastery Learning. New York: Holt, Rinehart and Winston, 1974.

Block, James H. "Mastery Learning: The State of the Craft." Educational Leadership 37 (1979): 114-127.

Block, James, and Anderson, L. Mastery Learning in Classroom Instruction. New York: Macmillan Publishing Company, 1975.

Bloom, Benjamin S. "Learning for Mastery." Evaluation Comment 1 (1968).

Bloom, Benjamin S. Human Characteristics and School Learning. New York: McGraw Hill Book Company, 1976.

Bloom, Benjamin S. All Our Children Learning. New York: McGraw Hill Book Company, 1981.

Bloom, Benjamin S. "The Search for Methods of Group Instruction as Effective as One-to-One Tutoring." Educational Leadership 41 (1984): 4-18.

Cohen, S. Alan. "Curve Fitting Is More Than a Statistical Exercise: Comments on Idstein's Paper." Outcomes 3 (1984): 15-20.

Coladarci, T., and Gage, N. L. "Effects of a Minimal Intervention on Teacher Behavior and Student Achievement." American Educational Research Journal 21 (1984): 539-556.

Cox, Pat L. "Complementary Roles in Successful Change." Educational Leadership 41 (November 1983): 10-13.

Crawford, J., and others. An Experiment on Teacher Effectiveness and

Parent-Assisted Instruction in the Third Grade, Vols. 1-3. Stanford, CA: Center for Educational Research at Stanford, Stanford University, 1978.

Cross, K. P. "The Rising Tide of School Reform Reports." Phi Delta Kappan 66 (1984): 167-172.

Daresh, John C., and Liu, Ching-Jen. "High School Principals' Perceptions of Their Instructional Leadership Behavior." Paper presented at the annual meeting of the American Educational Research Association, Chicago, April 1985.

De Bevoise, Wynn. "Synthesis of Research on the Principal as Instructional Leader." Educational Leadership 41 (February 1984): 14-20.

Edmonds, Ron. "Effective Schools for the Urban Poor." Educational Leadership 39 (1979): 15-18.

Emmer, Edmund T., and Evertson, C. Some Prescriptions and Activities for Organizing and Managing the Elementary Classroom. Austin, TX: The Research and Development Center for Teacher Education, 1980.

Evertson, C., and Emmer, E. "Preventive Classroom Management." In D.L. Duke (Ed.) Helping Teachers Manage Classrooms. Association for Supervision and Curriculum Development, 1982.

Evertson, C.; Emmer, E.; Sanford, J.; and Clement, B. "Improving Classroom Management: An Experiment in Elementary Classrooms." Paper presented at the annual meeting of the American Educational Research Association, New York, March 1982.

Farrar, Elanor; Neufield, Barbara; and Miles, Matthew B. "Effective Schools Program in High Schools: Social Promotion or Movement by Merit?" Phi Delta Kappan 65 (1984): 701-706.

Fitzpatrick, Kathleen A. "The Effects of a Secondary Classroom Management Training Program on Teacher and Student Behavior." Paper presented at the annual meeting of the American Educational Research Association, New York, March 1982.

Fullan, M., and Pomfret, A. "Research on Curriculum and Instruction Implementation." Review of Educational Research 47 (1977): 335-97.

Gall, M. D.; Haisley, F. B.; Baker, R. G., and Perez, M. The Relationship between Inservice Education Practices and Effectiveness of Basic Skills Instruction. Eugene, OR: Center for Educational Policy and Management, University of Oregon, 1982.

Gall, M. D.; Fielding, G.; Schalock, D.; Charters, W. W.; and Wilcyznski, J. M. Involving the Principal in Teachers' Staff Development: Effects in the Quality of Mathematics Instruction in Elementary Schools. Eugene, OR: Center for Educational Policy and Management, University of Oregon, 1984.

Gersten, Russell, and Carnine, Douglas. Administrative and Supervisory Support Functions for the Implementation of Effective Educational

Programs for Low Income Students. Eugene, OR: Center for Educational Policy and Management, University of Oregon, 1981.

Good, Thomas, and Grouws, Douglas. "The Missouri Mathematics Effectiveness Project: An Experimental Study on Fourth Grade Classrooms." Journal of Teacher Education 28 (1977): 49-54.

Goodlad, John. A Place Called School. New York: McGraw Hill, 1983.

Guskey, Thomas R. "What Is Mastery Learning and Why Do Educators Have Such Hopes for It?" Instructor 90 (1980): 80-86.

Guskey, Thomas R. "Mastery Learning: An Introduction." Impact on Instructional Improvement 17 (1981): 5-13.

Guskey, Thomas R. Implementing Mastery Learning. Belmont, CA: Wadsworth Publishing Company, 1984.

Guskey, Thomas R., and Gates, Sally L. "A Synthesis of Research on Group-Based Mastery Learning Programs." Paper presented at the annual meeting of the American Educational Research Association, Chicago, 1985.

Hecht, L. "Isolation from Learning Supports and the Process of Group Instruction." Unpublished doctoral dissertation, University of Chicago, 1977.

Hunter, Madeline. Improved Instruction. El Segundo, CA: TIP Publications, 1976.

"Illinois School Reform Plan." Illinois State Legislature. Senate Bill 730 and House Bill 1070, Springfield, Illinois, 1985.

Joyce, B., and Showers, B. "The Coaching of Teaching." Educational Leadership 37 (1981): 379-82.

Lawrence, G., and Harrison, D. Policy Implications of the Research on the Professional Development of Education Personnel: An Analysis of Fifty-Nine Studies. Washington, D.C.: Feistritzer Publications, 1980.

Lieberman, A. L., and Miller, L. "Synthesis of Research on Improving Schools." Educational Leadership 38 (1981): 583-86.

Little, J. W. "Norms of Collegiality and Experimentation: Workplace Conditions of School Success." American Educational Research Journal 19 (1982): 325-340.

Martinko, Mark; Yukl, Gary; and Marshall, Michele. "The Behavior of Effective Secondary School Principals: A Review." Paper presented at a workshop sponsored by the Center for Educational Policy and Management, University of Oregon, Eugene, Oregon, 1983.

National Commission on Excellence in Education. A Nation at Risk: The Imperative for Educational Reform. Washington, D.C.: U.S. Department of Education, 1983.

Natriello, G. Evaluation Frequency, Teacher Influence and the Internalization of Evaluation Processes: A Review of Six Studies Using the Theory of Evaluation and Authority. Eugene, OR: Center for Educational Policy and Management, University of Oregon, 1984.

Natriello, G., and Cohn, B. "Beyond Sanctions: The Evolution of a Merit Pay System." Paper presented at the annual meeting of the American Educational Research Association, Montreal, Canada, April 1983.

Natriello, G., and Rowe, B. "Life in a Loosely-Coupled World: The Evaluation of Elementary School Teachers." Unpublished paper, Washington University, St. Louis, Mo., 1981.

Pitner, N., and W. W. Charters, Jr. "Principal Influence on Teacher Behavior: Substitutes for Leadership." Eugene, OR: Center for Educational Policy and Management, University of Oregon, 1984.

Purkey, S. C., and Smith, M. S. "Effective Schools--A Review." Paper presented at the NIE Conference on Implications of Research on Teaching, Washington, D.C., February 1982.

Roper, S.; Deal, T. E.; and Dornbusch, S. M. "Collegial Evaluation of Classroom Teaching: Does It Work?" Educational Research Quarterly Spring (1976).

Rosenshine, Barak. "Teaching Functions in Instructional Programs." The Elementary School Journal 83 (1983): 335-51.

Russell, James S., and White, Thomas. Linking Behaviors and Activities of Secondary School Principals to School Effectiveness. Eugene, OR: Center for Educational Policy and Management, University of Oregon, 1982.

Russell, James S.; Mazzarella, Jo Ann; White, Thomas; and Maurer, Steven. Linking the Behaviors of Secondary School Principals to School Effectiveness: A Focus on Effective and Ineffective Behaviors. Eugene, OR: Center for Educational Policy and Management, University of Oregon, 1985.

Russell, James; White, Thomas; and Maurer, Steven. Linking Behaviors and Activities of Secondary School Principals to School Effectiveness: A Technical Report. Eugene, OR: Center for Educational Policy and Management, University of Oregon, 1984.

Rutter, M., and others. Fifteen Thousand Hours: Secondary Schools and Their Effects on Children. Cambridge, MA: Harvard University Press, 1979.

Sizer, Theodore. Horace's Compromise. Boston, MA: Houghton Mifflin, 1984.

Slavin, R. E. Using Student Team Learnings: Revised Edition. Baltimore, MD: Center for Social Organization of Schools, Johns Hopkins University, 1980.

Slavin, R. E. Cooperative Learning. New York: Longman, 1983a.

Slavin, R. E. "When Does Cooperative Learning Increase Student Achievement?"

Psychological Bulletin 94 (1983b): 429-445.

Slavin, R. E. "Component Building: A Strategy for Research-Based Instructidonal Improvement." Elementary School Journal 84 (1984): 255-269.

Slavin, R. E., and Karweit, N. L. "Mastery Learning and Student Teams: A Factorial Experiment in Urban General Mathematics Classes." American Educational Research Journal 21 (1984): 725-736.

Sparks, G. M. "Synthesis of Research on Staff Development for Effective Teaching." Educational Leadership 41 (1983): 65-72.

Stallings, Jane A. "Allocated Academic Learning Time Revisited, or Beyond Time on Task." Educational Researcher 9 (1980): 11-16.

Stallings, J. A., and Mohlman, G. C. School Policy, Leadership Style, Teacher Change, and Student Behavior in Eight Schools, Final Report. Washington, D.C.: National Institute of Education, 1981.

Thompson, J. E. "Evaluation and Authority in Elementary and Secondary Schools: A Comparison of Teachers and Administrators." Unpublished Ph.D. dissertation, Stanford University, Stanford, CA, 1981.

Walberg, H., and Lysakowski, R. S. "Instructional Effects of Cues, Participation, and Corrective Feedback: A Quantitative Synthesis." American Educational Research Journal 19 (1982): 559-578.

Appendix A

INSTRUCTIONAL FUNCTIONS TIME ALLOCATION

OBSERVATION INSTRUMENT

The preparation of these materials was made possible through an Institutional Grant awarded by the National Institute of Education to the Center for Educational Policy and Management.

Kathleen A. Fitzpatrick
3/84

INSTRUCTIONAL FUNCTIONS TIME ALLOCATION OBSERVATION INSTRUMENT

Guidelines for Classroom Observers

Cover Sheet: Please complete the items on the cover sheet prior to the beginning of the class period in which the observation is to be conducted. These items include the date, your name, the teacher's name, the school and district, the title of the course, the number of students in the class on that day, and the time class begins and ends. This information is collected for the sole purpose of organizing and managing the data collection process. The names of the individual teachers observed will not be contained in any reports concerning the data collection procedures.

Classroom Observation Coding Procedures: The classroom observation instrument has been designed to assess the extent of instructional time that is allocated to various teaching functions. The definitions of these functions are outlined below. During the classroom observation period note the teaching function that has been fulfilled within one-minute intervals of class time by circling the letter representing the particular function. At the five minute intervals the number of students who are off-task should be recorded in the appropriate space on the observation instrument.

Definitions of Codes

Code	Event	Definition
T	Transition	Transition time is the time that occurs between classroom events as the lesson shifts to the next stage. Ex. following the review of the previous day's lesson the teacher requests that students open their notebooks while he/she organizes the materials needed for the presentation of the new lesson.
N	Nonacademic interaction or interruption	Code N is recorded for instructional time that has not been focused on the content of the lesson. Examples of these events include times when the lesson is interrupted and when nonacademic interaction occurs. Ex. teacher corrects misbehaving student; discussion of social or non-content related topics; teacher is called to the door to receive a message; announcement is read on the PA system.
—	Number of students off-task	At five minute intervals the number of students who are off-task is recorded. Examples of student off-task behaviors include the following: misbehaving, inappropriate classroom behavior; waiting for the teacher to get assistance; interim activity, such as sharpening a pencil.
R	Review	Code R is recorded for the review of the previous lesson or homework assignment.
H	Collect Homework	Code H is recorded when the teacher collects the students' homework assignments.
Q	Quiz	Code Q is used when the teacher administers a quiz to assess the students' understanding of material that has been previously presented in class.

Code	Event	Definition
D	Development	Code D is recorded when the teacher presents a new lesson. The code is used for instruction and explanation of new skills or concepts.
P	Guided Practice	Code P is used when the students are given the opportunity to apply the new skills or concepts presented in class under the supervision of the teacher. During guided practice students are given assistance by the teacher and an explanation of each exercise is provided.
A	Formative Assessment	Code A is recorded when the teacher assess the students understanding of the material presented in class. The assessment process could include both paper and pencil, and oral quizes.
F	Feedback	F is recorded when, on the basis of the students' scores on the formative test, students are informed of their progress and are directed to alternative learning opportunities, or are permitted to begin assignments providing independent practice of the skills and or concepts presented in the lesson.
Rt Rm Rp	Reteaching	Code R if reteaching or corrective instruction is provided to those students identified as needing assistance on the formative assessment of progress. Circle Rt if the reteaching is teacher-led, Rm if the student is given assistance through instructional materials, or Rp if the student obtains assistance from a peer tutor or classroom aide.
Et Em	Enrichment	Code E if students are provided enrichment or extension learning activities. Circle Et if the activities are teacher led, or Em is the students are working primarily with instructional materials.

Code	Event	Definition
I (+)	Independent Practice	Code I when students are engaged in assignments providing independent practice of the skills and or concepts presented in the lesson. Circle I (+) if the teacher monitors their work, otherwise simply circle I. Independent practice opportunities include the assignment of homework.
O	Other	Circle O if none of the above categories describes the instructional event that has occurred. If the event is non-academic and/or not related to the content of the lesson being presented in class circle N. At the conclusion of the observation period provide a written description of any instructional events that have been designated as "other" on the summary sheet attached to the instrument.

*Note: In some cases additional learning opportunities may be provided to some students in the form of reteaching, while other students are given enrichment learning activities or are assigned independent practice exercises to complete. In such cases, when more than one instructional event simultaneously occurs, it is appropriate to code each instructional event at the time that it occurs.

Instructional Functions Time Allocation

CLASSROOM OBSERVATION FORM

Your Name: _____ Date: _____

Teacher's Name: _____ School: _____

Title of Course: _____ District: _____

No. of students in class today: _____

Time Class Began: _____

Time Class Ended: _____

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Kathleen A. Fitzpatrick
3/84

Instructional Function Time Allocation

CLASSROOM OBSERVATION INSTRUMENT

Event	1:00	2:00	3:00	4:00	5:00	6:00	7:00	8:00	9:00	10:00	11:00	12:00	13:00	14:00	15:00	
Transition Nonacademic Interaction Number of students off-task	T N	T N	T N	T N	—	T N	T N	T N	T N	—	T N	T N	T N	T N	—	
Review Collect Homework Quiz	R H Q	R H Q	R H Q	R H Q		R H Q	R H Q	R H Q	R H Q		R H Q	R H Q	R H Q	R H Q		
Development Practice	D P	D P	D P	D P		D P	D P	D P	D P		D P	D P	D P	D P		
Formative Assessment Feedback Reteaching t = teacher led m = materials p = peer tutor or aide Enrichment t = teacher led m = materials	A F Rt Rm Rp Et Em	A F Rt Rm Rp Et Em	A F Rt Rm Rp Et Em	A F Rt Rm Rp Et Em		A F Rt Rm Rp Et Em	A F Rt Rm Rp Et Em	A F Rt Rm Rp Et Em	A F Rt Rm Rp Et Em		A F Rt Rm Rp Et Em	A F Rt Rm Rp Et Em	A F Rt Rm Rp Et Em	A F Rt Rm Rp Et Em		
Independent Practice Other	I + O	I + O	I + O	I + O		I + O	I + O	I + O	I + O		I + O	I + O	I + O	I + O		

Event	16:00	17:00	18:00	19:00	20:00	21:00	22:00	23:00	24:00	25:00	26:00	27:00	28:00	29:00	30:00	
Transition Nonacademic Interaction Number of students off-task	T N	T N	T N	T N	—	T N	T N	T N	T N	—	T N	T N	T N	T N	—	
Review Collect Homework Quiz	R H Q	R H Q	R H Q	R H Q		R H Q	R H Q	R H Q	R H Q		R H Q	R H Q	R H Q	R H Q		
Development Practice	D P	D P	D P	D P		D P	D P	D P	D P		D P	D P	D P	D P		
Formative Assessment Feedback Reteaching t = teacher led m = materials p = peer tutor or aide Enrichment t = teacher led m = materials	A F Rt Rm Rp Et Em	A F Rt Rm Rp Et Em	A F Rt Rm Rp Et Em	A F Rt Rm Rp Et Em		A F Rt Rm Rp Et Em	A F Rt Rm Rp Et Em	A F Rt Rm Rp Et Em	A F Rt Rm Rp Et Em		A F Rt Rm Rp Et Em	A F Rt Rm Rp Et Em	A F Rt Rm Rp Et Em	A F Rt Rm Rp Et Em		
Independent Other	I + O	I + O	I + O	I + O		I + O	I + O	I + O	I + O		I + O	I + O	I + O	I + O		

BEST COPY AVAILABLE

Event	31:00	32:00	33:00	34:00	35:00	36:00	37:00	38:00	39:00	40:00	41:00	42:00	43:00	44:00	45:00	
Transition Nonacademic Interaction Number of students off-task	T N	T N	T N	T N	—	T N	T N	T N	T N	—	T N	T N	T N	T N	—	
Review Collect Homework Quiz	R H Q	R H Q	R H Q	R H Q		R H Q	R H Q	R H Q	R H Q		R H Q	R H Q	R H Q	R H Q		
Development Practice	D P	D P	D P	D P		D P	D P	D P	D P		D P	D P	D P	D P		
Formative Assessment Feedback Reteaching t = teacher led m = materials p = peer tutor or aide Enrichment t = teacher led m = materials	A F Rt Rm Rp Et Em	A F Rt Rm Rp Et Em	A F Rt Rm Rp Et Em	A F Rt Rm Rp Et Em		A F Rt Rm Rp Et Em	A F Rt Rm Rp Et Em	A F Rt Rm Rp Et Em	A F Rt Rm Rp Et Em		A F Rt Rm Rp Et Em	A F Rt Rm Rp Et Em	A F Rt Rm Rp Et Em	A F Rt Rm Rp Et Em		
Independent Practice Other	I + O	I + O	I + O	I + O		I + O	I + O	I + O	I + O		I + O	I + O	I + O	I + O		

Event	46:00	47:00	48:00	49:00	50:00	51:00	52:00	53:00	54:00	55:00	56:00	57:00	58:00	59:00	60:00	
Transition Nonacademic Interaction Number of students off-task	T N	T N	T N	T N	—	T N	T N	T N	T N	—	T N	T N	T N	T N	—	
Review Collect Homework Quiz	R H Q	R H Q	R H Q	R H Q		R H Q	R H Q	R H Q	R H Q		R H Q	R H Q	R H Q	R H Q		
Development Practice	D P	D P	D P	D P		D P	D P	D P	D P		D P	D P	D P	D P		
Formative Assessment Feedback Reteaching t = teacher led m = materials p = peer tutor or aide Enrichment t = teacher led m = materials	A F Rt Rm Rp Et Em	A F Rt Rm Rp Et Em	A F Rt Rm Rp Et Em	A F Rt Rm Rp Et Em		A F Rt Rm Rp Et Em	A F Rt Rm Rp Et Em	A F Rt Rm Rp Et Em	A F Rt Rm Rp Et Em		A F Rt Rm Rp Et Em	A F Rt Rm Rp Et Em	A F Rt Rm Rp Et Em	A F Rt Rm Rp Et Em		
Independent Practice Other	I + O	I + O	I + O	I + O		I + O	I + O	I + O	I + O		I + O	I + O	I + O	I + O		

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Observer's Name: _____
Date: _____
Time of observation: _____

SUMMARY SHEET

1. Total number of times Instructional Events were coded _____

Instructional Event	Code	Number of times event occurred	% of time event occurred
Transition	T		
Nonacademic interaction	N		
Review	R		
Collect Homework	H		
Quiz	Q		
Development	D		
Guided Practice	P		
Formative Assessment	A		
Feedback	F		
Reteaching			
teacher-led	Rt		
materials	Rm		
peer tutor or aide	Rp		
Enrichment			
teacher-led	Et		
materials	Em		
Independent Practice	I +	I = __ I + = __	I = __% I + = __%
Other	O		

2. Total number of students who were off-task during the instructional period. _____

3. Total number of students in class. _____

4. Percentage of students off-task _____

5. Describe any instructional events that were designated as "other" during the observation period.

Appendix B

SURVEY OF TEACHERS' PERCEPTIONS OF

SUPPORT FOR INSTRUCTIONAL IMPROVEMENT

(Note: With permission Items 1, 2, 3, and 4 of the survey are adaptations of items contained in the User Questionnaire designed by THE NETWORK for their project entitled "A Study of Dissemination Efforts Supporting School Improvement," Loucks 1980.)

Name: _____

Below is a set of questions which asks for some information concerning your use of the research-based instructional strategies which have been presented in the staff development program. Your assistance in providing this information is most appreciated. All responses will be maintained on a confidential basis.

1. To what extent do you feel the advantages of using the instructional strategies presented in the staff development program outweigh the disadvantages? Check the appropriate statement.

   The advantages outweigh the disadvantages. _____

   The advantages somewhat outweigh the disadvantages. _____

   The advantages and the disadvantages are about equal. _____

   The disadvantages somewhat outweigh the advantages. _____

   The disadvantages outweigh the advantages. _____

2. Check the appropriate boxes below to indicate the frequency of assistance provided to you in implementing the instructional strategies and how useful you found the assistance. If not applicable to you, leave the row blank.

	THIS PERSON ASSISTED:			I FOUND THEIR ASSISTANCE:		
Person	Not at all	Sometimes	Frequently	Not useful	Useful	Very useful
Principal						
Assistant Principal						
Fellow Teachers						
Department Head						
Superintendent						
Assistant Superintendent or other central office staff						
External Resource Person						
OTHER:						

3. Is there one person in your district who has been the most active in helping to implement the research-based instructional strategies? Include yourself in considering the question.

Yes _____

No _____

Name: _____

Position: _____

4. Below is a list of different types of assistance that might have been provided to you in connection with implementing the research-based instructional startegies and possible providers of this assistance. Enter the appropriate number in each box to indicate your response.

Put a 0 in the box if the person did not provide any of that type of assistance.

Put a 1 in the box if the person provided that type of assistance, but it was not useful.

Put a 2 in the box if the person provided that type of assistance and you found it useful.

Put a 3 in the box if the person provided that type of assistance and you found it very useful.

Types of Assistance	Princ.	Asst. Princ.	Supt.	Asst. Supt.	Fellow Teachers	Dept. Head	External Resource Person	Other
a. Training in using the research-based strategies								
b. Opportunities to observe the instructional practices in use								
c. Moral support for trying to implement new strategies								
d. Availability of materials								
e. Opportunity for Problem-solving sessions								
f. Help in securing resources (release time, aides, equipment, etc.)								
g. Information concerning the goals and focus of the instructional strageties								
h. Information about applying the strategies in my class								

Types of Assistance	Princ.	Asst. Princ.	Supt.	Asst. Supt.	Fellow Teachers	Dept. Head	External Resource Person	Other
i. Information about the impact of my efforts to apply the strategies in my class								
j. Other:								

5. Are there any types of assistance that have not been available to you but could be useful in your effort to implement the research-based instructional strategies presented in the program?

Yes _____

No _____

If you responded "yes," please describe the type(s) and source(s) of this assistance.

6. Have there been any hindrances or obstacles to your efforts to apply the research-based instructional strategies?

Yes _____

No _____

If you responded "yes," please describe the nature of these obstacles and your recommendations for either eliminating them or diminishing their negative influence.

Appendix C

It would be most appreciated if you would take a few moments to complete this survey. All responses to the questionnaire will be maintained on a confidential basis. Thank you for your time in responding to this survey.

Name: _____

SURVEY OF TEACHER EVALUATION PROCEDURES

1. Please indicate the number of times per year teachers' instructional performance is evaluated by the person or persons assigned supervisory responsibilities in your district by placing a check in the appropriate space below.

Building Level:	More than 3 times/year	3 times/ year	2 times/ year	1 time/ year	Once every other year	Once every two years	Once every three years	Less than once every 3 years	None or doe not Apply
Principal									
Assistant Principal									
Department Chairman or Division Head									
Teacher Peer Supervisors									
Others:									
District Level:									
Superintendent									
Assistant or Associate Superintendent									
Director of Personnel									
Director of Instructional Services									
Others:									

2. Place a check in the appropriate space to indicate the components that are included in the evaluation procedures employed by your district.

A. Sources of Information Gathered to Determine the Evaluation of Teachers' Performance:

____ Supervisor's rating of teaching performance on the basis of criteria established for the evaluation of all teachers.

____ Supervisors' rating of teacher's performance of non-teaching responsibilities according to a general set of expectations established for all teachers.

____ Supervisors' rating of teacher's progress on individually selected instructional goals.

____ Supervisors' rating of teacher's performance of non-teaching responibilities on the basis of expectations that are unique to the teacher's position.

____ Data gathered from supervisors' observation of teacher's instructional performance.

____ Student achievement test data.

____ Parent evaluations of teaching perfomrnace.

____ Student evaluations of teaching performance.

____ Peer evaluations of teaching performance.

____ Teacher's self-evaluation of instructional performance.

____ Other: _____

_____

_____

B. Procedural Elements:

____ Pre-conference (meeting between supervisor and teacher prior to the observation of the teacher's class).

____ Formulation by supervisor and teacher of individual goal(s) to strengthen the teacher's instructional performance.

____ Prior notice of date and time of classroom observation.

____ Classroom observation.

____ Supervisor's completion of rating form or checklist during classroom observation.

____ Supervisor's collection of observational data related to pre-determined instructional goal.

____ Conference between teacher and supervisor to discuss evaluation of teacher's instructional performance.

____ Completion of formal evaluation report.

____ Other: _____

_____

_____

3. Do the outcomes of the evaluation process affect teachers' salaries?_____
Do the outcomes of the evaluation process affect any other type of recognition of the quality of the teacher's instructional performance?____
If so, what type of recognition is provided?_____
_____

4. Please circle the appropriate number to indicate your response to the following questions. (1 = little or none; 5 = significant amount)

A. How much influence do teachers in your district have over the process of the evaluation of their instructional performance?	1	2	3	4	5
B. To what extent does the evaluation process recognize the teaching responsibilities and concerns of each teacher?	1	2	3	4	5
C. How much assistance in improving the quality of instruction is provided to teachers through the evaluation process?	1	2	3	4	5
D. To what extent do the outcomes of the evaluation process rely on objective data, rather than subjective judgments?	1	2	3	4	5

5. Rate the overall quality of the feedback regarding instructional performance that is provided to teachers through the instructional supervisory process by circling the number below which describes it.

1	2	3	4	5
general				specific
vague				clear

6. Does the instructional supervision process provide direction and support for individual teachers to:

a. improve areas of weaknesses in their teaching performance? ____yes ____no
b. strengthen the quality of their performance? ____yes ____no

7. Briefly describe what you believe are the aims of the evaluation procedures employed by your district.

8. Are the aims of the teacher evaluation process fulfilled in practice?____ Explain your response.

9. In your estimation what is the greatest strength of the evaluation process?

10. a. What is the most serious weakness of the evaluation process?

b. How could this weakness be overcome?

Appendix D

Name: _____

Date: _____

Survey: Teacher Workload

Please respond to the questions below pertaining to your workload this year. Your responses will be maintained on a confidential basis.

1. How many classes do you teach each day? 1. _____

2. What is the amount of time allocated for each class? 2. _____minutes

3. How many different course preparations are you assigned? 3. _____

4. Please indicate the grade and ability levels of the classes you are teaching this year by completing the following chart. Code your responses by selecting the number 9, 10, 11, or 12 to indicate grade level, and the letters H, A, or L to indicate honors, average, or low ability classes. If the class contains students of more than one grade or ability level, please indicate so. Also, please list the total number of students enrolled in each class on the last column.

Course Title	Grade Level(s) 9,10,11, or 12	Ability Level(s) H, A, or L	Total # of Students
1.			
2.			
3.			
4.			
5.			

5. What is the amount of time available to you during the school day for planning and course preparation? (i.e., "conference and planning time") 5. _____minutes/day

6. How much time during the school day are you assigned to non-instructional duties? (i.e., hall duty, cafeteria supervision, study hall monitoring) 6. _____minutes/day

7. What is the amount of time each week you are involved in sponsored school activities outside of the regular school hours? (i.e., coaching responsibilities, club sponsorships)

7. _____hours/week

8. Is release time or compensation for time spent beyond the required school day hours provided to complete work on curriculum development and instructional improvement projects that have been designated by the district and/or school?

8. _____

9. If your response to item #8 was "yes," please rate the level of support that is provided by checking your response.

Level of Support:

9. _____insufficient
_____adequate
_____generous

10. In addition to your teaching assignment and possible involvement in the extracurricular program please describe any other responsibilities you are expected to fulfill in your position.

_____

_____

_____

_____

11. Please rate the overall demands of your workload by checking your response.

11. _____light
_____manageable
_____heavy